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PROCEEDINGS OF THE MILITARY LIBRARIANS  
WORKSHOP (15TH) HELD AT SAN ANTONIO,  
TEXAS ON 4-6 OCTOBER 1971. PRINCIPLES  
OF MANAGEMENT FOR DOD LIBRARIES

Air Force Military Personnel Center  
Randolph Air Force Base, Texas

1971

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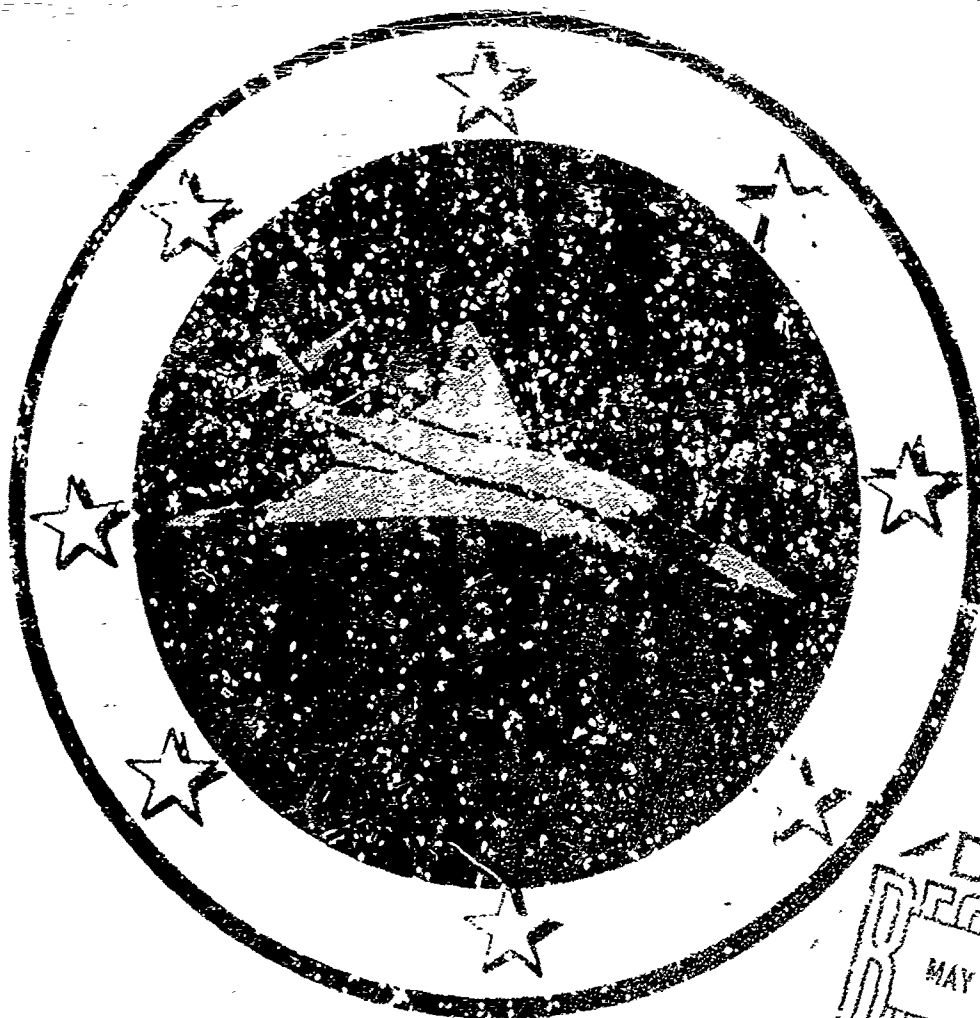
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**MILITARY LIBRARIANS WORKSHOP**

4-6 OCTOBER 1971



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**PRINCIPLES OF MANAGEMENT**  
**For DOD Libraries**

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**SAN ANTONIO, TEXAS**

**Conference Proceedings**

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**PROCEEDINGS**

**15th MILITARY LIBRARIANS WORKSHOP**

**4-6 October 1971**

**PRINCIPLES OF MANAGEMENT FOR DOD LIBRARIES**

**HOST**  
Headquarters  
United States Air Force  
Military Personnel Center  
Randolph Air Force Base  
and  
San Antonio Area Military Libraries

**WORKSHOP CHAIRMAN**  
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### The Workshop - A Brief Summary

Headquarters, United States Air Force, Military Personnel Center, Randolph Air Force Base and the Military Libraries of the San Antonio area served as hosts to the 15th Military Librarians Workshop, 4-6 October 1971.

The first general session was held at the School of Aerospace Medicine, Brooks Air Force Base. Maj Gen Rene G. Dupont, Assistant Deputy Chief of Staff for Military Personnel, and Brig Gen George E. Schafer, Commander Aerospace Medical Division, School of Aerospace Medicine, extended greetings to the participants.

The preview and recapitulation of the three day conference were presented by Miss Louise Nabors, Command Librarian, Air Training Command, and Mr. Egon Weiss, Director, United States Military Academy. Mr. John L. Cook, Director of Air Force Libraries, described the Air Force library program. The mission and organization of the School of Aerospace Medicine Library was discussed by its Director, Mrs. Sarah L. Peterson.

Mr. Gerald M. Coble, Libraries Services Branch, Bureau of Naval Personnel, provided a training film for library technicians. Library tours included an academic library, the School of Aerospace Medicine Library, a base library, Lackland Air Force Base Library, and a presidential library, the Lyndon B. Johnson Library.

The Workshop took the form of a seminar with the theme, Principles of Management for DOD Libraries. Sessions were conducted by Mr. John W. Demidovich, Lt Col Graham W. Rider, and Capt James L. Sheard from the School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio. Extensive use was made of slides, hand-outs, group activities and discussions. Edited versions of their presentations are included in these proceedings.

Miss Margrett Zenich, Chief, STINFO Division, OAS, Corps of Engineers, Department of the Army and Dr. Bernard M. Fry, Dean, School of Library Science, Indiana University, presented a briefing on the status of various TISA projects.

Following a discussion of the services of the Defense Documentation Center by Mr. John Berry, the Workshop concluded with a brief business meeting of the Military Librarians Division, Special Libraries Association, with Miss Doris Baster, Chairman, presiding.

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## CREATIVITY IN DOD LIBRARIES

John W. Demidovich  
Air Force Institute of Technology

Yesterday we had a wonderful trip and a nice lunch and here we are today, Tuesday, and I wonder what your attitude is in reference to the workshop topic for this year, management. What is new in management, I am sure is your attitude. How naive can we be that we need to have a workshop in that area. I suspected that I might have some attitude problems this morning and I wondered what is your perspective in reference to this topic.

Currently I have a daughter in college. Some of you do too, I am sure, and some of you have had children in college. Talking about attitudes and perspectives. I have a letter from a young lady to her parents that I would like to share with you. Please sit back; take your shoes off, if you like; loosen your tie; take your coats off. This is going to be a very informal seminar. Our attitude is going to be that this is going to be a co-learning experience. We are going to learn from you and you are going to learn from us. So I want you to be comfortable. Any time you have to leave the room, do not raise your hand. If you do not like what is going on, just get up and leave. This attitude of mine may shock some of you. Well, as I mentioned before, learning is a co-learning experience. Because of our sagging economy, there is a batticery in industry, in government, and in educational institutions which is simply stated grow or go. These are tough words but we have brilliant people today unemployed, walking the streets looking for jobs. Talented people who previously commanded salaries as high as sixty to seventy thousand dollars a year are unemployed. The competition is keen. Attitude is important. So, let me read this letter.

Dear Mother and Dad: Since I left for college I have been remiss in writing and I am sorry for my thoughtlessness in not having written before. I will bring you up to date now but before you read on, please sit down. You are not to read any further unless you are sitting down.

Well then, I am getting along pretty well now. The skull fracture and the concussion I got when I jumped out of the window of my dormitory when it caught on fire shortly after my arrival here is pretty well healed now. I only spent two weeks in the hospital and now I can see almost normally and only get those sick headaches once a day. Fortunately the fire in the dormitory and my jump

was witnessed by an attendant at the gas station near the dormitory. He was the one who called the fire department and the ambulance. He also visited me in the hospital and, since I had nowhere to live because of the burned out dormitory, he was kind enough to invite me to share his apartment with him. It is really a basement room but kind of cute. He is a very fine boy and we have fallen deeply in love and are planning to get married. We haven't set the exact date yet but it will be before my pregnancy begins to show. Yes, Mother and Dad, I am pregnant and I know how much you are looking forward to being grandparents. I know you will welcome the baby and give it the same love and devotion and tender care you gave me when I was a child. The reason for the delay in our marriage is that my boyfriend has a minor infection which prevents us from passing our premarital blood test and I carelessly caught it from him. I know that you will welcome him into our family with open arms. He is kind and although not well educated, he is ambitious. Although he is of a different religion than ours, I know your often expressed tolerance will not permit you to be bothered by that.

Now that I have brought you up to date, I want to tell you that there was no dormitory fire; I did not have a concussion or skull fracture; I was not in the hospital; I am not pregnant; I am not engaged; I am not infected; and there is no boyfriend in my life. However, I am getting a D in history and an F in science and I want you to see those marks in their proper perspective. Signed, Your Loving Daughter, Susie.

Here is a young lady who had a problem and here is a young lady who, in my opinion, used a little imagination. And so, we want to kick off this management workshop with a presentation in the area of creativity - creativity as it applies in the library, creativity as it applies in your home, creativity as it applies to your relationship with your wives, your husbands, your boyfriends, your girlfriends, your brothers and sisters. We want to be sure that in this management seminar that we get off to a fast start recognizing that creativity is a God-given talent that is dormant in most of us because of society's demands for conformity. Before I proceed any further, I must admit that in society we need both, creativity and conformity. This is the tight rope that a manager must walk.



I look to you as managers. You may call yourselves librarians; you may be base librarians, technical, academic or command librarians. You may represent a variety of organizations throughout this wonderful world, but when it comes to the final analysis, you are managers. You are paid to make decisions. You are paid to manage people resources. While you are here away from your important duties, we want you to take a look at your decision making personalities. What are your strong points? What are your weak points? This is a healthy exercise. Let us take a look at ourselves to be sure that we are not becoming obsolete. We have to grow if we want to maintain our current tasks and to prepare for the future ones. We are living in a dynamic, changing world and that is what we want to dramatize this morning. If you do not think it is dynamic then I suggest that you read two books. They are currently best sellers. One is *Future Shock* by Alvin Toffler which tells us that you and I may have to prepare for four or five different careers before the year 2000 arrives. The other current best seller is *The Greening of America* by Charles Reich. These are two books which I think all managers worldwide should read and thoroughly understand so that your perspective and your attitude will be appropriate in this dynamic, changing environment.

For the next fifty minutes this morning I am going to use slides. I am going to ask a lot of questions. I want you to put your pens and pencils down because we have handouts for you. Our philosophy is more think and less ink. This is the philosophy my daughter tells me they introduced in her school in Ohio three years ago. Based on her grades, the system does not work as far as teenagers are concerned. But you are highly motivated, mature, successful managers; so you can sit back. I have handouts which we are going to give to those of you who are still here at noon tomorrow. That is to keep the dropout rate low. So, we are going to have slides. All my questions are non-graded; guess responses are acceptable. You have the freedom to fail. There are no grades. When I ask a question, if I do not get the right answer after three good responses, I will give it to you free.

In this first fifty minutes we are going to take a look rapidly at the dynamic, changing world, why you and I have to have the proper attitude, and why we have to be adaptable. Secondly, we are going to take a look at this God-given talent, creativity. We will define our term - what is it, who has it. Is it limited to President Nixon, John Cook, and Mr. Severance from Air University? Are these the

only three who have this talent? We are going to find out who has it. Then, thirdly, we are going to take a look at why we do not use this God-given talent. There are many barriers, many roadblocks, many inhibitors. We are going to close after taking a look at some way you and I can stimulate creativity within ourselves. When you go back to your important jobs Thursday, you can share this new knowledge with the people you supervise and work with. You can establish and maintain a climate where ideas can be generated. There is no organization today, in my humble opinion, that can survive without ideas. Big companies that were top-notch ten, twenty years ago are dying. We are reading about their deaths in obituaries. Those that are not growing are being merged, are being gobbled up by conglomerates.

So, let us take a look at some way we can stimulate this creativity. Let us take a look at the first point. In 1785, we are told that Benjamin Franklin wrote a letter to a friend in which he said there were two things certain in life. Do you remember what they were? Death and taxes. We see on our slide that he blew it. He forgot the third certainty and that third certainty is change. Now to some of you this word change is a dirty six-letter word. To others it is an opportunity for individual and organizational growth. Attitude is so important in reference to this six-letter word. This is really brought out in the book, *Future Shock*. Key changes are coming. Those of you who were at the Air Force meeting last night were introduced to a change - computerizing the central procurement process. Some of you were acceptable and others were doubtful. Again, the third certainty we have to learn to handle is change. We have to learn to manage it instead of resisting it.

We see on this next slide a manager. You are a manager. It could be you looking out of your library any place in the country, any place in the world. As you look outside your window, some of you see one big mess. It frightens you; it overwhelms you. Others see a land of opportunities - a land for growth. It all depends upon your attitude with reference to change. We see on this next slide a closed-minded manager. Now, it looks like a man up there, but, Ladies and Gentlemen, we have closed-minded male managers and female managers. There is no sex discrimination. These managers are in industry; they are in government; they are in educational institutions. Some are as young as twenty-five; some are thirty, thirty-five, forty, fifty, sixty. There is no age discrimination. We have managers with closed minds here. Some of them unfortunately at the young

age of forty are intellectually sterile. They are sweating out retirement twenty-five years from now. We are looking for these individuals. We cannot afford to have them. This manager's greatest fear is change. He resists change. He is inflexible. He is unaware of the new management science techniques. He has communication problems. He cannot communicate.

Since we work in the Department of Defense, we have to manage costly and complex weapons systems which suggest inter-disciplinary decision making. You have to talk to people of other disciplines and this man has a vocabulary problem. He is a prisoner of the past or he likes to manage today the way he did in 1930. You remember the good old days! Hamburger was six pounds for a quarter, but who had the quarter? He likes to talk about the past - the big war. You remember the big war! Remember the Korean war? The future has scared the daylight out of him. If he read *Future Shock*, he would go into shock. You talk about man-machine systems. He has no idea what a machine can do for him in processing information which is rapidly becoming one of the most important resources in our organizations today. Do you have employment or promotional liabilities? Do you understand what these young people are talking about who are getting degrees in areas you and I never heard of? Do you have a communication gap? Look at the peace sign. You are looking for something complex and very exotic while these kids, these teenagers, are trying to talk to us in very simple terms. Do you understand the limitations and capabilities of computers? Do you know when they should be used and when they should not be used? You know you have to feel comfortable in interacting with a machine regardless of where the machine is located in the universe. We have not even solved people to people communication problems.

Dr. John Lee, a distinguished professor of management at Indiana University, says that managers worldwide are in a race. Did you know that? You and I are in a race, a race against obsolescence on one hand and retirement on the other hand. Are you winning this race against obsolescence? We are looking for better ways and there are many, many changes to be made. If you do not think that we need to improve the way we manage our resources in DOD, may I suggest to you, and I am sure many of you already have read it, Mr. Gilbert Fitzhugh's Blue Ribbon Report to the President of the United States on 1 July 1970. Ladies and Gentlemen, Mr. Gilbert Fitzhugh.

Chairman of Metropolitan Life Insurance Company, with thirteen other citizens, including two ladies, studied how DOD is organized, how we acquire and maintain our weapon systems, and thirdly, how we make decisions. You should read that report. That is our report card and there are 113 recommendations for improvement. One of them is about this problem of obsolescence.

What makes managing in DOD so difficult? Some of you may not be able to see this slide so let me try to describe it. In the center is the DOD systems management concept. The system is a big, bad word today. Whether it is a maintenance system, a weapon acquisition system, a library system, an educational system, a religious system makes no difference. At the apex is the DOD manager who must be aware of the changing threat posed by the enemy. That is why we have so much expenditure in the area of CIA, DIA, and other intelligence activities. Based on what we learn and what the enemy is doing, we are trying to avoid technological surprise. You know what happened to our nation in 1957 when the Sputnik was fired.

So, based on what we learn, we may have to pump in money and push the development program DOD, prior to the decline of the last two years, was spending eight billion dollars a year for research and development. You take the other thirty-one Federal agencies and you are talking about another eight billion dollars. You add the public sector, nine billion dollars, and the United States of America alone is pumping in about twenty-five billion dollars a year on research and development. It is no longer that hippie looking innovator down in the basement, out in the garage, or up in the attic looking for new and better ways. We have research on purpose. Millions of people are involved in this important work which advances the technology. The advancing technology gives us the ability to faster produce new products, improved products, new services. We exploit numerical control techniques. This gives us the ability to change our weapon systems. We must deploy faster our units on an international scale to support all our military treaties. So this is the amount of change that you and I must accommodate in the Department of Defense. Notice that we have more opportunity for individual and organizational growth even though we are constantly being plagued with more obsolescence. Unfortunately too many managers are hypnotized by hardware obsolescence.

Another area that you should be vitally aware of and concerned about is people obsolescence.

That is an area that we have overlooked and we have to be totally aware of because we can rapidly become obsolete. Notice there is a tremendous campaign in our country to get more defense for less dollars. The DOD budget is being continuously cut. We are having RIFS in Civil Service, a reduction in military force structure. Less people, less money, but more what? Work. This suggests we have to find better ways to manage our people resources. DOD no longer is enjoying top place in our nation so far as the budget is concerned. By 1975, it is predicted that we will become number two. Health, Education, and Welfare will take over as far as the high number of dollars expended to support our domestication. There is a change in national priority as initiated by President Nixon. The issues today are domestically oriented. We are vitally concerned with pollution. This is a decade of pollution - land, air, water, noise pollution. The Fitzhugh report suggests that we may have management pollution. We are concerned about increased crime, misuse of drugs, increased alcoholism, and increased automation which is leading us into the age of leisure. We are going from a society of work to a society of leisure. We have to educate people for leisure just as we had to educate them for work. This is in response to change.

Is it any different in industry? Notice in industry that they have adopted a systems management concept. Things that we discover in the military are used very successfully in the total society. We are not a separate part of society. We are a member of society and things we discover in the military are being used in industry and educational institutions. Conversely, what they develop in industry and educational institutions, we also adopt in the military. If you were in industry, if you were in an educational institution, look at the response the change requires. If any company does not maintain a dialogue, is unaware of the changing needs of the consumer, I can predict that that company is either going to die or be merged. It is just that simple. Competition is keen. The private sector pumps in about nine billion dollars a year in research and development. They advance the technology. They use numerical control techniques, direct computer production techniques. They are changing their products, improving their services. They have to market their results faster. There is more opportunity for individual growth and organizational change just like in DOD. They are plagued with obsolescence. There was not a company that I traveled to within the last twelve months that was not plagued with the obsolescence problem. In fact Boeing Aircraft had the

biggest one. They had to appoint a task force to try to unload equipment because they had no orders to build aircraft.

So we see that the environment in which we live is dynamic and changing. Our attitude must constantly undergo change. We must be adaptable; we must be receptive; we must be open-minded. One of the answers is creativity. We have to use our imagination. It is in a dormant stage, unfortunately, because of the demands imposed on us by society. There are millions of people whom I collectively label as God's frozen people. We have to unfreeze them if we are sincere in supporting these programs of identifying unnecessary costs and improvising better methods.

Before I go any further, I do not want to leave you the impression that creativity is a panacea, that it is a cure-all for all the problems in management. This is not true. None of the management techniques that we are going to discuss with you today or tomorrow are panaceas in themselves. You should be aware of their limitations and capabilities. You should know when to use them and when not to use them. It is the simple tools that get the job done. It does not always have to be sophisticated, exotic tools. This is where we are so guilty many times in what I like to call an over-kill of these management science techniques. We can be guilty of over-kill when what we desperately need in our organization, whether it is in DOD, whether it is in the library, or wherever you find management are people who can think creatively. We need people who can think critically, who can think systematically, who can think logically, who can think rationally. We cannot afford to have people managing by the seat of their pants particularly when you have a weapons system like the C-5 today that costs about fifty million dollars a copy. And we have to be sure that we have in our libraries the latest, most reliable, current information accessible for these managers. With the information explosion that is hitting the world today, it is impossible for any manager to know everything about anything. So they look to you for assistance in gathering, in storing and retrieving the minimum reliable information in the right format at the right time so that they can minimize the uncertainties in a decision making problem. That is why I want to impress upon you the need for using creativity in decision making and problem solving. That is what you are paid to do.

This next slide designates or describes what is involved in problem solving. As a manager, we have some goal recognition in mind. There are

certain things that we want to establish or services we want to provide. Many times we are successful because with regulations from John Cook and others we can go directly and achieve our goal. No problem, life is wonderful. We are doing a good job. We are going to get a sustained superior award and maybe a promotion. Many times we hit an obstacle that prevents us from achieving our goal. Now what are some of the obstacles that you run into in your library business? Money, personnel, space, facilities, antagonism, closed-minded managers. These are obstacles. So the question I ask you, when you hit those obstacles, what approach do you use? Do you use a systematic approach or are you guilty of helter-skelter, illogical thinking?

Today we have on the market about forty different problem solving and decision making packages. The point I want to leave with you this morning is that you should use a systematic approach. We have one that we have taught for many years - recognize a problem, gather data, list the solutions, test the solutions, select a solution and apply. Ladies and Gentlemen, I think there is a better methodology on the market today and we are going to share it with you tomorrow. Tomorrow morning we are going to take a couple of hours to share with you one of the hottest problem solving and decision making packages in industry today. It is found in a book titled *The Rational Manager* by Charles Kepner and Benjamin Tregoe. Jim, Rip, and I like to think we are learner oriented. It is something we were taught at Air University. It is something we have always tried to practice. Hopefully we have whetted your appetite so that when you get back to your jobs after tomorrow's presentation, you will take a look at that book to see if it is better.

The chief point is to be systematic. We need managers who can select a systematic approach. If you can learn to defer judgment when using a systematic approach, I think they have an unbeatable combination. Use a systematic approach and then defer judgment each step of the way because each of us has a dual personality. I wonder how many of you ever recognized we have on one hand the ability to idealize and on the other hand the ability to evaluate. We must learn, we must discipline ourselves to keep the two separate. If you do not separate the two, I can predict with the highest probability of success that you are going to waste time, you are going to waste energy, and you are going to waste resources. You are going to contribute to ulcers and to heart attacks. Life on earth can be pleasant if we can get people to use a common vocabulary because many of our problems are communication problems.

Recognize the problem. In all of these problem solving, decision making packages that is the first step. Peter Drucker, the most prolific writer in management today, says that it is embarrassing when a manager gets the right answer to the wrong problem. I know when I was on active duty that a good way to get chewed-out was to give a general the wrong answer, the right answer to the wrong problem. Problem definition, problem recognition is not easy. You and I have a tendency to jump to conclusions and we have got to stop. A systematic approach would help us. Ladies and Gentlemen, if you do not know what the problem is, no systematic approach is going to help you. You are going to blow it. We want to be sure that you recognize the need for a systematic approach and that we can exploit this dual personality that we have.

On this slide we see a book titled *The Applied Imagination*. Many of you may have read this book by Alex Osborn. He tells us that all human beings have four basic mental functions. We have the power to absorb through our five senses as you are doing now. We have the ability to retain this knowledge. You have the best data base ever created by God. Did you know that? You have a computer between your ears. Fourteen billion neurons are running loose in there and every experience you have had from the moment you were conceived, notice I said conceived, is stored in that data base. Did you know that? Every experience you have had, good, bad or indifferent, regardless of how you got it is there. My psychologist friends tell me that you and I use only 8% of that potential. Rapidly, non-graded question. What per cent goes unused? Is this too fast for you? I can slow down a little bit. It is all right to use your pencils and pads. 92% goes unused. If that is true, then multiply that by two hundred and five million people. There is the greatest wasted resource. These two powers give us the ability to learn. We have a third power, the power to judge to analyze, to synthesize, to compare, to weigh and then ultimately to choose. Judgment is involved. Then we have the power to imagine. This is our ability to look into the future and we have to be future oriented.

Boss Kettering of Dayton, Ohio, said many years ago that we ought to be interested in the future because that is where we are going to spend the rest of our lives. That is something to ponder. We ought to be interested in the future because that is where we are going to spend the rest of our lives. Imagination is our ability to look into the future. Decision making is future oriented. Every decision you made is in the future. We have the

ability to see these new combinations, these new ways, these better ways. These two mental functions give us the ability to think. All of you have these mental functions. Your children have them, your loved ones, your superiors, your subordinates, your peers. Imagination is more important than knowledge, yet knowledge is important. You cannot be creative without knowledge. Creativity cannot stem from the untaught. So, we need knowledge. Albert Einstein, a fantastic human being, said that imagination is more important than knowledge.

Let us define what we mean by creativity. Dr. Sidney Parnes, President of the Creative Education Foundation in Buffalo, New York, said that creativity is the function of three elements. Some of you may want to make a mental note about the Creative Problem Solving Institute held in Buffalo each year. It is the Mecca of the creative thinkers. In your personal career development program, you may wish to attend. The first of the three elements is knowledge. All of the knowledge that you have had from the moment you walked into this hotel ballroom this morning is stored in a data base. Relate that brain, that giant organ that each and everyone of us has to a kaleidoscope. What is a kaleidoscope? You remember the questions are non-graded. You have the freedom to fail. You look through a little tube and what do you see when you look at the light? You see colors of how many patterns? How many patterns do you see if you look at it one? One pattern. What happens if you do not do anything? It remains the same pattern. The advertisements claim that these kaleidoscopes have one million patterns. Well, how do you get the other nine hundred and ninety-nine thousand, nine hundred and ninety-nine? You have to imaginatively manipulate, rearrange, and turn it inside out. You have to rearrange that data and, flash, you break out with new patterns. The same thing happens with our minds. All that data that we have in there, if it is not utilized, if it is not rearranged, if it is not manipulated, if it is not turned inside out, is stagnant.

The second element according to Dr. Sidney Parnes is evaluation. You must imaginatively manipulate the pattern and then, once you get the new pattern, you have to evaluate it. Does it have any utility? Does it have any value or is it just trivia? Evaluation is important. A colleague of mine, Dr. Robert Gillespie, an electronics engineer who now has his own international management consulting firm, once told me not to stop at three elements. If you do not have the fourth element, you are not going to be creative. It starts with an

M. What do you think it is? Motivation. As the kids say today, if you are not turned on, if you don't give a damn, if you are not interested in finding a better way, a cheaper way, then you are not going to be creative. A beautiful example of intrinsic motivation is in the film, "The Gathering Of Eagles." There are many lessons to be learned from that movie with reference to violations of principles of management. In the movie, Rock Hudson is a SAC Wing Commander who cannot understand why his organization is not turned on. His Chief Master Sergeant tells him what is wrong with his outfit and beautifully describes intrinsic motivation, this fire from within, versus that fire from without. We have to externally move people into action. So, Gillespie is right, we need to be motivated. Once you have this knowledge which you magnificently manipulate, you evaluate it. You have to be turned on in order to come up with these new patterns.

All of us have this God-given talent. Why don't we use it? There are four barriers that I want to discuss rapidly with you. Let us take a look at this slide which will tell us something about the learning process. Again, these are estimates. Don't get hung-up with any of my statistics. I am reminded that if you have any hang-ups today, may they be drip-dry. My psychologist friends tell me that in the learning process we learn 83% by sight, 10% by hearing, 4% by smelling, 2% by touching, 1% by tasting. These are estimates of how we learn. Of course, if this is true, then I want to take a look at sight. The first barrier to creativity is what I call habit. Habit is doing something the same way everytime. We have good habits; we have poor habits. I want to address myself to the poor habits. One of the habits that we are going to look at since we learn 83% by sight is our habit of looking but not seeing. We are guilty of making errors when we look at things, errors in observation, perceptual errors.

Now we are going to have to do some work. I am going to flash some pictures on the screen. I want you to get involved in this thing. I want you to tell me what you see. Don't think about it. Just give me responses. Jim is going to flash a slide on the screen for five seconds. Put your pencils down. Sit back and relax. You have to be perceptive. Are you ready for the unexpected? How many saw Paris in the spring? How many saw something else? A triangle. Two doves. Let us look at the slide again. We look but we do not see what is in our total environment. Next slide, please. What do you see here? A man smoking a cigar, a doorway, a teakettle. Now that we have those different

responses, let us all imagine that it is a man. What man would that suggest? Churchill. Now that we have established the man, where is he smoking that cigar? Specifically where might he be smoking that cigar in our country? In Washington, in front of the Washington Monument. What do you see here? A skull. How many see a girl? If you look at the white and discard everything else, what do you see? A skull. Then reverse it and you will see the lady possibly for the first time.

You know in management we have a lot of data. I was shocked last week when I was at Eglin AFB to hear a man from Air Force Logistics Command say that in the four hundred and thirty data processing islands that we have in Air Force Logistics Command today and where we use over one hundred and twenty computers that 75% of the data is redundant. A lot of data is vying for our attention in the management environment. Some is relevant; some is irrelevant. To further illustrate how we may be guilty of perceptual errors, take a look at this next slide. When you look at a slide that has two colors, which color do you home in on? The darker. When you do, what do you see? When you look at the blue you see the word fly. What do you see when you look at the blue? Geo. stric figures. What do you see in common with everybody in this room regardless of your background? The arrow. If you are looking at the blue, you are hung-up on trivia. You are hung-up on irrelevant data and you are missing the relevant data in your environment. If I ask you to look at the white between the blue, what do you see? Fly. Is there anyone here that does not see the word fly? No mature manager would admit publicly that he or she does not see what everyone else sees. We do not like to admit to people that we cannot see how linear programming, how operations research, how decision making, how creativity can apply to librarians. A colleague of mine at Wright-Patterson wanted to know why I was going to San Antonio to talk to librarians about decision making. He thinks librarians do not make any decisions. It is not uncommon for people to honestly say that they do not see the word fly, but I am sure there are many who would not want to publicly embarrass themselves. If you fall in that category, come to Rcom 1912 and we will have a remedial session.

Now we are going to give you another slide. Because it is only going to be up there five seconds, you have to be ready for the unexpected. What did you see in that slide? Six airplanes, seven airplanes, factory chimneys, smoke, pollution. Better take another look and see how many

airplanes are there. Two, four, six, and look at that number seven over there by that smokestack. How many smokestacks are there? Seven. What else do we have? A water tank, factories, clowns, silos. You see when we look, we just home in on certain things and ignore the rest. What we are trying to show you through these errors of observation is that we cannot afford to have managers like this. We cannot afford to have managers loose in DOD who have on blinders, who only see one little area. I suggested earlier that we have to make decisions in an inter-disciplinary environment. We have to tear off these blinders. That is why today there is so much emphasis on integrated management informations systems, integrated logistic support. The key is integration to eliminate the duplication of effort that exists in DOD. So tunnel vision, functional fixation is something that we have to work on. If we do not clear this thing up, Senator Proxmire is going to have a hayday with us.

Habit is the first barrier. The second barrier is fear - fear of failure, fear of getting fired, fear of not getting your budget approved, fear of being ridiculed, fear of having people laugh at you. This is a serious barrier, an inhibitor to creativity. Dr. James Conant, former President of Harvard, recognized what fear can do to a person. Let us look at a cartoon he had mounted on his wall. "Behold the turtle, he makes progress only when his neck is out." This is something we should remember. We have too many risk-aversers in our libraries today. You have to stick your neck out. You have to compete with other managers at your institution for those critical resources. You have to display initiative. You have to be on the offense. You cannot sit back in your library waiting for somebody to give you the resources you need. You have to take a look at your fears.

A third barrier is prejudice. This is a mental attitude for or against people. What do you expect, she is from the Army. She is a command librarian. He is a dumb Polack. You have ethnic stories; you have religious stories. We rule people out because of our prejudices, because of our biases. This is an inhibitor. We are not receptive to ideas from people who are just clerks, a GS-2, or a janitor. We rule people out because of rank, job title, sex, ethnic, religious, and racial bias.

A fourth barrier is inertia. This is one barrier we are all plagued with. Next week we have to get organized. Procrastination. It is always next week. We do not have time to do it today. You have a lot of good ideas back in your desks and in your heads but you do not have time to develop them. You

do not have time to document them. You do not have persistence, the drive to pursue them. This is a tremendous inhibitor. Another form of inertia is what they call killer phrases. There are about one-hundred and thirty-two killer phrases that we use on one another daily. For example, when someone comes in and says, "Boss, I have an idea, what do you think of it?" What is your first response? It is no good. What are you trying to do, get me fired? We tried that forty-eight years ago and it did not work. Headquarters would never buy that. And here is the king of all killer phrases, "It can't be done." Do you know in your archives it is documented that aeronautical engineers say the bumblebee cannot fly? It is too heavy; it is out of proportion and the wings are too small. But the bumblebee does not know this simple truth. It not only flies, Ladies and Gentlemen, but I am told it also makes a little honey on the side. It can't be done. Confucius has a time-tested quotation for people who throw that phrase around loosely. It is a couple of thousand years old. "Those who say it cannot be done better get out of way of man doing it." This country has been blessed with those who do not know that it cannot be done. H. Ross Perot of Texas is a beautiful example of a man who was told by the banking community and loan institutions that there was no need for software. He was perceptive. He saw a need for software to drive the hardware in the computer industry. He could not get a loan. Nine years later he was a billionaire. Hugh Hefner is another example. We have other examples of people who were able to overcome these killer phrases. When those motivated Wright brothers had the nerve to fly, they repaired bicycles and they performed research. They got a lot of help from libraries. They wrote the Smithsonian Institution; they communicated with people in Germany who also had the desire to fly. On that memorable day in December 1903 when they did in fact fly, the editor of the Dayton Daily News refused to print the story because his attitude was that if God wanted man to fly, he would have given him wings. So recognize that when you come up with an idea, you are automatically going to be a minority of one. You are going to have to buck the system; you are going to have to buck closed-minded managers. Ideas have been successfully implemented in government, in industry, and in educational institutions. We have bureaucracy in all three major societies. It is not peculiar to DOD.

What can we do to stimulate our creativity? Those barriers that I talked about - habit, fear, prejudice, and inertia - are only four. There are twenty-eight others. I did not want to take time

out to discuss all of them. What can we do? The first thing we can do is to take a look at ourselves, take a look at our habits. We had better do something about those working against us. Fear is normally attributed to lack of information. So read the books; call people; call headquarters; call a subordinate organization. As you gather information, I predict fear will disappear. Prejudice, you will never abolish it. The only thing we can hope and pray is to control it. Be open-minded; be objective. That is easy to say but so difficult to do. To combat inertia, be action-minded. Do not be a complainer. We have too many complainers in our organization. We need more action oriented people. If they would take all the time they attribute to complaining and apply it to implementing, they would succeed more times than they would ever dream was possible. Inertia, the only answer is action. Do it today.

The second thing you can do is to use the MIT checklist developed by a group of engineers. A list of self-interrogators is in the handout. There are sixty-seven different questions from these powerful, manipulative words. When you are looking at a problem, you are looking for alternatives. You are ready to make a decision. Take words like adapt, modify, magnify, manifest, subtract, add, substitute, reverse, combine, rearrange, and who knows what will fall out. What other ideas might be adaptable? Fifty or sixty other questions are on this idea bearing checklist. It is amazing what the mind can do if we ever let it go. So I say you must develop an outstanding ability to ask questions. An inseparable part of questioning is listening. We are lousy listeners. We have not been taught to listen. We listen to refute instead of listening to understand. If you are sincere, if you have any professional societies in your organization, I suggest you explore the feasibility of procuring a listening package developed by Xerox. I am told it is one of the best in our country. So the second thing you can do is to develop an outstanding ability to ask questions.

A third thing you can do is to study the different idea generation techniques on the market. There are about eighteen of them. I have a handout for you which lists eleven of them. If we can learn how to judge or withhold our judgment when using a systematic approach to problem solving and decision making, our chances of coming up with the best solution is maximized. That is what our goal should always be as librarians. Thomas Edison said there is a better way. Find it. Do not wait for headquarters; do not wait for your bosses. You have ideas and your



people have ideas. Your responsibility is to establish and maintain a kind of ware that can be nurtured. So this is one of eleven different idea generation techniques. Let us take a look at some of its features. Of course, we want ideas. The whole idea of creativity is to come up with new ideas, new ways, better products so that we can manage our critical resources. We have ideas. What we need to do next is to get them out. There are some rules that we can put into practice to accomplish this. Freewheeling is welcome. Let your imagination run wild. This is difficult for you and me to do because we have been taught all our lives to judge. Now we say, let it all hang on, withhold judgment. This is the most important rule. Quality is wanted with an accent on speed. If you can put these rules into play, you can go solo or you can use a group. That is the beauty of this methodology. You can go either way. This can give birth to an idea bank. You have a bank to store money. Why don't we have idea banks? Next time you have a problem, don't call ten people together; go to the idea bank and see if the solution might be there. We will have to give serious consideration to this.

Next thing we can do to stimulate our creativity is to be positive. Instead of being negative, be positive. Next time somebody comes to you with an idea, before you open your mouth, cross your legs. That will be a signal to you that the first thing that comes out of your mouth is going to be positive. Give all the positive responses to that person's idea. Then, uncross your legs which is a signal to you that you have to turn that coin over and tell him what weaknesses you detect. Be positive first and negative second. Here is another way to be creative. As librarians you are no different than any other manager. You have a half life. We are told that 50% of what an engineer is taught in college is out of date within five years after graduation. So I ask you, Mr. and Mrs. Librarian and Information Specialist, what is your half life? Are you working on 50% efficiency? The answer is continuing education which is rapidly becoming big business in our country. Managers today are going back to school by the millions. We have over three hundred universities and colleges in our country that have established and are maintaining aggressive continuing education programs. You better start getting outside the library profession. You had better start taking some courses in the general area of management. You had better

expand your horizon so that when you get into this inter-disciplinary task force you will know what that engineer is saying, what that doctor is saying, and what that psychologist is saying. You had better expand your vocabulary so that you can play a proper part. Of course, I am suggesting here that you must be a pro. You know we always talk about librarianship as a profession. My wife is a nurse and the nurses are having the same problem. Are you a professional? Well, if you are ever going to be in a profession, you have to be a pro. The only way you are going to be a pro is to keep up to date. You cannot manage resources today with knowledge that is five, ten, twenty, thirty years old. We have discovered in the last decade that the college degree and the high school diploma is no longer a lifetime guarantee that you can manage the rest of your lives without continuing education.

It is difficult for you and me because we must break lifetime habits. May I ask you to fold your hands. Now look at your thumbs, is your left thumb on top or is your right thumb on top? Before you answer, separate your hands. How many had the left thumb on top? How many had the right thumb on top? Now clasp your hands again and reverse the position of your thumbs. How does it feel? Strange, awkward. Now, fold your arms, please. Look at your arms. Is your left arm on top or your right one? Before you answer, separate your arms. Now fold them again and reverse it? How does it feel? Wrong, strange. So we are going to have to break lifelong habits and it is not easy. This suggests that you have to practice, practice, practice.

To close this first hour I want to share with you a quotation from an Italian, Machiavelli. In 1675 he said something which I think is appropriate. "There is nothing more difficult to take in hand, more perilous to conduct or more uncertain in its success than to take the lead in the introduction of a new order of things." When you are creative, you are going to come up with new ideas. You are going to become automatically a changed agent. You are going to introduce change. You have to recognize that this is not an easy position. You have to be courageous; you have to be able to pursue these ideas. There is no doubt in my mind that, if you are able to put some of the things into practice that we are going to talk to you about this week, you will be better managers.





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## FORECASTING AND PLANNING IN DOD LIBRARIES

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We are having a symposium or a seminar and what these generally degenerate into is a series of people who stand up, talk about something and then give you a five minute question and answer period. No one asks any questions and it just seems to repeat itself during the day. Everyone looks forward to the cocktail hour because it rapidly becomes a boring operation. We did not want that to happen. We had some ideas we felt we could contribute, that we could build upon, and we felt we might be able to do something a little different for you during this session, in fact, make it a workshop. So we intend to do it.

What I am going to do is take something off a top shelf so to speak and show you something that is being done, or proposed to be done today in the military organization, how it is applied and then let you take that idea, that method, if you will, and apply it to your business. What I will do first is talk about how we conceptually analyze the future. This is the first part of planning and forecasting and it really has a great deal to do with forecasting itself. Forecasting can be very sophisticated. We can talk in terms of mathematical models, gathering and analyzing data and coming out with some projection to the future. This is normally what is discussed when we talk about forecasting. There is a lesser known but I think equally valuable way of forecasting the future, a qualitative way, it is conceptual analysis. What we want to do is take a look at the future from a concept point of view. What is our concept of the future in our business?

Now I want to take a look way out. We are going to take a look at 1984, or a period defined as somewhere generally between the years of 1980 and 1985. You are going to say, "aw, come on now, I've got a library and the best I can do is look to next year." I am afraid that most managers, within and without the DOD, say that next year is as far as we can plan. We do not even know what the budget is going to be. My response has to do with objectives, and it concerns a quote that is liberally translated from the Koran: "If you do not know where you are going, any road will do." If you do not know what your objective is for fifteen years from now, then any road through the next couple of years will do. We will take what we can get and we will end up perhaps not as well off as we might have been had we set up some long-range goal. Once we have decided the place

we want to be then each year we can take a piece of it until finally, over that fifteen year span, we will have accomplished what we want. Of course, each year we will be revising our goal as we get a little more knowledge about the changes that are taking place between now and that time period.

So, the problem is, let's forecast. Let's forecast that time period. I said that I was going to take something off the shelf. What I am going to do is give you something that has nothing to do, directly at least, with libraries. I am going to do a strategic analysis. Now this is not necessarily the method that current Department of Defense planners use in analyzing the future for strategic purposes in their ultimate military operations, military defense, of this nation. It is, however, a way to look at the future. I think the framework is what is so valuable. We will take that framework when I am finished and apply it to libraries and information centers within the Department of Defense. We will ask somewhat similar questions and it is with those questions that we will be concerned following this presentation. There are twenty tables around this room and we will ask you to go to these tables and have a buzz session. Each table will have a question and you people who will be sitting at those tables will be asked to address yourselves to the question and come up with an answer to it. You will turn those into me before we break for lunch. Tomorrow morning we will use the results of your efforts in developing a plan to reach that point we should be in 1984.

So back to the strategic analysis. This is going to be my own strategic analysis, no one else's. I have no access to secret documents, I do not work on the planning staff of the Department of Defense, and I have not had an opportunity to look at anything in this line for at least three years. So, it's unclassified, it is purely personal opinion, and you are welcome to argue with me if you like. I am going to do this analysis within this framework. This is the way I want to start. There are four areas in which I must come up with answers if I am going to define what I need to do in order to have a satisfactory military capability for the time period 1980 to 1985. I need to talk about political attitudes around the world. I need to know what they are going to be because they will influence the world situation. I need to know how society will allocate resources to the military, not just this society, the American society, but our

friends and our enemies as well. How are they going to look at the military and what are they going to do for it? What will be the material level of civilization? How advanced will we be in fifteen years? In what areas is society going to press forward, and finally, what will the instruments of war be then? We will start with political attitudes.

I am going to give you my opinions of what the political attitude will be around the world in 1980 and 1985. I think that Russia will be somewhat more moderated than it is today. Russia has evolved since the October revolution through a very vitriolic state of internal and external pressures toward developing the Communist political attitude. It has moderated somewhat in the last decade and I think will continue to do so. The reason, well basically either through our own efforts or those of our friends, sometimes those people who are not quite so friendly to us, Russia's communism has been contained. It is no longer able to expand. Not being able to expand it must turn inward upon itself. Finally, the leaders of Russia are finding themselves in a position today where they have to say to the people, or the people are saying to them, "You've made all of these promises to us all these years and yet you cannot quite fulfill the promises because we have all these things we have to do and we've got to take care of our expansion in Hungary and Austria and East Germany, etc. There was a war going on that we had to support but none of that is going on any longer." Other people are saying, "Where is the new pair of shoes, where is the new automobile, where is the new apartment?" People will have to start controlling these things. So, Russia will turn inward. Russia will not be quite the threat that it has been. On the other hand, China will be the major threat in this time period.

China is about two decades behind Russia in the evolution of Communist politics. Communist China is still somewhat expansionary. Its leadership is still somewhat new, new in the sense that Lenin and Stalin were new, new in the sense of maintaining a very firm control over the country and having such very specific ideas about what that country's objectives will be. China will be a major threat to us during this time period. The Southeast Asia area will still be unsettled but we will not be involved. Still unsettled because it is an emerging part of the world that has caught the attention of the major nations. As a result there will continue to be guerrilla warfare, there will be strikes of various sorts, there will be political overthrow, actions of a very turbulent nature, but we will try, because of our experience during the past five years, to stay out of it and I think we will be

successful in staying out of it.

The Middle East presents a real problem. Most of what I have talked about so far has had to do with what you might call economic politics. The demand for more land or the demand for more peoples to believe or to operate within an economic social system called Communism. In the Middle East you have a totally different situation, a religious situation. So long as two religions that cannot peacefully co-exist but do in fact exist next door to each other there will be a continuing problem of near or actual war. It is this area that may present an even greater threat to our stability than China.

The European area, much more sophisticated politically than it is today, will have made significant moves toward a European political community, the evolution of the European Economic Community. There will be a European government to which the states of Europe are allied. A vast amount of work will have been completed towards the creation of such a political community.

I do not believe any other areas of the world present any significant political problems or will at that time period. South America will remain essentially the same over the next decade.

I think in Africa you are going to see very, very slow growth. There are going to be several decades before the progress in Africa reaches the point where those nations can evolve to any kind of important political position in the world. So much then for external political attitudes.

This is what we are going to see in our environment. How about the internal political attitudes? What are we going to be like? What will be the prevailing political attitude in the United States? With reference to our particular problem, the prevailing political attitude will be inwardly directed. Remember that the youth of today will be between thirty and thirty-five years of age during this time period. They will be the new generation of adults who are typically the most effective and the most participative in politics in the United States. These people will be voting. The attitudes that they have acquired during the past five years will be carried with them, though somewhat moderated, into this time period. Their political attitudes will be against war, against the military, though not perhaps so violently as they are characterized today. These people will be worried about problems which I do not think will have been solved by that time, the same problems we face today: race, the poor, ecology. These are the problems that will still be with us and they will

be predominant within the United States. So, the social economic problems that we have today will still be with us and they will be with us in somewhat the same form in the 1980 to 1985 time period. We will have made some tremendous strides toward solutions, but nonetheless they will not be solved. I think social problems will have a way of never being totally solved. Even so, the nation will be looking at its own problems, trying to isolate itself to some extent from the rest of the world. The national goal will be to solve these particular problems. We will have long since abrogated any total responsibility to be the world's policeman, to be the world's provider of food and sustenance to the poor and ailing. We will be willing to provide advice and assistance. We will be able to provide some measure of help, some measure of world policing but actually on a lower level than we have provided today. Our national goals will be the improvement of our society during this time period.

We discussed how these societies will be developed in terms of political attitudes. How will these societies allocate their resources? I believe that our potential enemies will allocate more on a percentage basis to the military than we will. Our enemies, the potential enemy, China for example, will allocate a very significant portion of its national production to military forces. They will be creating weapons, they will be building sophisticated military materials in the name of self defense just as we have since 1945 with Korea. I believe that the same sort of development will occur in China. It will view Russia and it will view us as major potential threats to its existence during this time period. Therefore, China will devote a considerable amount of its "dollars" to its military, and accordingly, present to us a considerable threat to turn into an armed force.

Other potential enemies, I do not know whose side you might say they would be on but let's look at that Middle East conflict again. I do not believe that either the Arabic nations or the Jewish nation of Israel can afford not to allocate a significant portion of their respective products to the military. They will over-allocate because of the religious character of the war that exists there. The others in the world, I do not think that we will need too much of an allocation of resources from other nations of the world, no more than we are seeing today on the part of developing nations who to some extent allocate resources to the military for status and prestige purposes. They are concerned with the protection of their borders from their neighbors but beyond that they are not presenting any great threat to the world.

Internally, and here I want to break it down a little bit, to talk of specific areas, how will our society allocate some resources to us in the personnel area. I think that we are going to have less people offered to us. The size of the Department of Defense will, I believe, continually decrease through this decade and level out at a fairly low level at about 1980. It will be an all-volunteer armed force and the character of that armed force is up for some discussion. There are those who see it as a mercenary organization with all the negative connotations of the word. There are others who see it in a much more favorable light, but at any rate I think we are going to get less people. We are going to have trouble determining the nature of the force itself. What kind of people are we going to get? Some constructive steps are being taken today in terms of offering at least pay comparable to the lowest level within a civilian organization. We have to offer a man a job in the military at which he can earn the same amount of money that he will earn elsewhere in society given his skills and ability. Beyond that we need to do much more. I do not want to get into it here but we will have a significant problem in the military of creating an environment in which we can attract the right kind of people for the job. Research and development has been a big dollar consumer throughout our history since World War II. It will stop being a big dollar consumer. Military research and development has been going down and I predict will continue to go down in terms of dollars over the next decade. Procurement during this time period will be replacement only. These two major consumers of money will be at a minimal level.

We have seen gross national products for defense go from something like 44% in the middle of 1944 or the middle of World War II to a low of 3.7% in 1949. It averaged about 8% during the Korean War years. A year ago it was 7% with 6.6% projected for this year. I believe that by the time we see 1980 roll around that we will see a budget which will reflect a consumption of something like 4% of gross national products being allocated to the Department of Defense, a very low level. It will be a low level because all that we will be really needing is enough money to carry on our operations and a little bit of money to sustain procurement, to replace what we don't have. Is it a bleak picture? Yes, it is a bleak picture because I see the military role in the society that's going to be with us in 1980 as a reduced, a significantly reduced role. People in this nation will want to see the military organization revert somewhat but not all the way back to what it was in 1938 or 39.

They will want to see the significance of the military in society reduced so that the other problems can be brought to the fore.

There will be significant increases in the material level of civilization. As we move from wartime to peacetime, that is if you can really separate these any more, but as we move from an emphasis on war with the Vietnam involvement to a peacetime emphasis in this country, we're going to re-allocate dollars. Dollars that have been given to military research and development, dollars that once were used to develop new weapons systems, will be used instead to develop new systems for trash disposal, new systems of transportation, new systems to take care of air pollution and water pollution. In other words, the technological improvements of the decade will be in the area of the ecology.

The transportation area, or as the military term is used, the infrastructure of the nation will be enhanced and from a military point, at least a defensive point of view this will be good. We will have better highways and better transportation systems. You hear them talking about better air transportation, better land transportation, particularly in the form of rail, inter-city as well as intra-city. The area rapid transit system in San Francisco is the forerunner of significant new developments that will come to the cities in terms of moving people around. The freeway has not been an adequate solution to the problem but we will create better ones. Power distribution within the United States will be significantly improved. The brown-outs, the black-outs, of the 60's will not appear during the 80's as we will have solved those kinds of problems. The same will be true with facilities in terms of the other utilities. You hear them talking about sewage disposal, water distribution, gas, etc. We will have significant improvements in this area, all of them with a mind toward cleaning the environment.

What will be the general instruments of war that we will possess during this time period? Again, I do not see a very good picture at this point. I think on the land and on the sea and in the air we are going to have essentially the same weapons that we have today. We will probably buy a few F-15's and we will buy U-1's for the Air Force, but we are not going to buy many. I think we will still have the F-111 around and the F-4. It will be our major weapon. We will have some F-15's but they will not be the major backbone of our fighter fleet nor will the B-1 be the backbone of our inter-continental strategic force. Instead we will still have the Minuteman and the Titan on

board. So, we will find no significant changes. Some development, but not the rapid pace, not the rapid obsolescence, of weapons.

In space our efforts will be aimed at a more drawn out space program than we have seen in the past. There will be no more one decade objective of reaching a planet, or saying as we did in 1950 that we will reach the moon by 1970. We cannot really afford it. I think we will continue our exploration of space and from that derive significant development. So we are really going to go into the next decade with about what we have now.

And others, I always like to throw in others. There is one environment in which we do not really do very well when it comes to fighting. We fight well on the surface of land, we fight well in the air, we fight well on sea and below the surface of the sea, but we do not do very well underneath the surface of the land. Someday someone is going to come along with a new machine that will enable us to make war under the surface of land and that will be the last expansion I suppose as far as the environment of war is concerned. I doubt that we will see any significant progress in this area unless it is found that pipeline transportation by pneumatic tube of people in capsules is possible. This has been proposed. The idea here is to dig long tunnels between cities and then to build capsules that will be operated within these tunnels. You and I will sit in one of these cars and, just as in the old J.C. Penney stores, you put it in and close the door and a charge of air comes along and shoots you from San Francisco down to Los Angeles in a matter of moments. It is a fascinating concept and if we develop the technology to build the tunnels, then, of course, we will have the technology to further the sub-surface application of military operations. One of the best aspects of this idea is to get transportation that does not present the eyesore that the highways do today. It does not take ground surface that people need on which to live. So, we may put some money in that area.

There is an analysis through the four levels. What I have done is taken four different parts of a framework and looked at the world situation in 1984. I told you it was my opinion. This is what we will be faced with. Now this is the forecast and it is the first step in planning. First, what is it going to be like? What do we face in our future? Once we know that, then we can come up with some answers about what we must do.

So far as DOD librarians are concerned, I do not believe that you as managers will be closed in 1984. You will still have some ideas about what

libraries should be like and what your job is going to be like in 1984. These kinds of questions once answered give you a road to follow, a specific road because you know where you're going. And that is managing by objectives. What are our objectives? Let's conceptually analyze the library of 1984. Let's take a look at the prevailing attitude. What will the military public, your military public, think about your library in 1984? What will be their attitude toward you? I don't propose to answer these questions. I have them written on cards and they are on the tables. When we break, you will have a chance to take a look at the questions and discuss with your colleagues the answers to these questions. Tomorrow we will bring them together and see what we have as a composite of some 200 professional managers of libraries.

How about the military specialist? There will be a lot of military specialists in this time period and these military specialists will need your services. Forget what their attitude will be toward you. What will they want from you in the way of services? What will their demands be? What kinds of specialists will exist in that time frame? How about the military academician? What will his needs be? You know you will have a new armed force during that time period, one that will have had a decade in which to develop a professional all volunteer armed force. What will be the changing nature of the academic requirement in such an armed force? What kind of people will we have? What kind of training programs are we going to have that you will have to support at the lowest level for this man volunteering to come in. What kind of programs are you going to have to support the new officer manager of this time period? He is not going to be working with draftees or men who volunteered for the Navy because they did not want the Army. He is going to be working with a totally different organization and his men are going to be different too. How about the librarian? How will the librarian look at the library? What changes in attitude do you perceive in your profession? Have any of the attitudes changed over the past decade? Have you detected in the fifteen years that you have been meeting differences, changes, any dynamic developments within the management of libraries? What will happen in the future? What is the pattern? What is the trend that will identify the librarian's attitude toward the 1984 library services? How will society treat us?

First of all, let's take a look at our competitors. I think you are going to have to define who they are. Will society give more to the competing activities than to you. Other substitutes for the library, do they exist today? Will they exist in the

future? Will someone else do your job better than you? Will you be on a base where the nearby college campus can give the military public perhaps better service than you can or the military academician? Does the downtown library do a better job? Will it do a better job in the future than you can do? What will society do for those who are all set in the business of library management? How about the inward allocations? How will the Department of Defense treat the library during this time period? Is your budget going to be slashed, cut, dropped? Are we going to close the base library as a money-saving device? It might happen if you haven't gone through the kind of analysis that I am talking about. You can tell your boss and he can tell his boss and so on until they reach the top what you perceive as the definite role for the library in the future. If you do not define that role, then I do not believe that you will be able to defend yourselves when it comes to perhaps the very existence of the library. Once you define the role then you can talk in terms of what facilities you need, what people you need, what kind of financing you need. What will the library look like in 1984? It's an interesting question.

What will be the material level of the library? I am trying to maintain a continuity between the earlier strategic analysis and this one. What will we do in the way of technological innovation for the library in terms of internal control? What sort of tools can you conceive of to do your job better particularly in the area of computer applications. I think there are tremendous developments that can be made. I saw two in the last three years that I think are significant. They impressed me. I am an outsider. I am a user of the service. At Arizona State University I saw a computer system with which the librarian could tell me who had a book I was unable to find on the shelf, when it was due back, and when I could have it. That is a tremendous improvement in service. I am sure each of you is familiar with such services but as a user I was very, very impressed. It worked well. When I did research for my dissertation, I wrote the Defense Logistics Studies Information Exchange and DDC. From both I got some very good bibliographies that helped me a great deal. I showed these to my committee and they were convinced I had not done any research, that I had not gone to the library and pored for hours over book stacks. I had gone instead to a reference service and they gave me six of these custom bibliographies that you've all seen in their impressive stacks. These people were convinced that I was lying down on the job. It was not until the chairman of my committee said to the other four members,

"Gentlemen, this is what we have been striving for in the educational world, this kind of research service. This is what we want not what we want to object to," that they finally allowed me to go ahead. I certainly want to thank those people here who have contributed to these kinds of services. What can you do fifteen years from now? What sort of creativity can you apply to your job to come up with even better service to the customer? You can use your imaginations when you come to this question.

What will the library infrastructure be? Are we still going to have base libraries with one set of books that the military man and his dependents can use, or will there be a different way of getting knowledge to people? Are there substitute ways. Building a building and putting books in it has done quite well for centuries. Do we want to continue that way? Perhaps, but maybe there is a better way to get knowledge to the individual. Think about it. Be imaginative. Be creative in answering this particular question. How can we better serve our customer?

Finally, what will be the general instruments of knowledge? A more too creative question, but again I am trying to work in the same framework of analysis. How are we going to communicate knowledge to people in 1984? Will we still use books? The book, since the first one was printed, has been an excellent medium of communication, but you are all well aware of the facilities problem. Books do occupy space. So a number of other things have developed. There are microfiche and microfilm. There are even more miniaturized ways of presenting data. Can we do something differently? Do we need to stay with the book? Films, tapes and computers you all know about and the only new idea I could come up with was the throw away, and I am not sure that it is new. Could you possibly check a book out to me that I could throw away when I have read it? Is there a way of doing that? Would it be more or less expensive? Are there other ways that you could communicate knowledge to me or facilitate the communication of knowledge to me? These are the things that I think you need to address yourself to because, unless you perceive new ways in which knowledge might be communicated, then you will have a difficult time in defining the role of the library, the kind of infrastructure needed, and all of the other questions that are answered here. They all interrelate. Once they do interrelate for you then you have a concept, a concept of the library in 1984. That concept becomes your objective. This is what we need and I can now begin to describe it in terms of facility, in terms of the people needed to run it, in terms of the money

needed to create it, and of course, in terms of the other things we need, i.e., those things that communicate the knowledge that we store. These are the things I need in my plan. That is it; that is the framework for analysis. Answer the questions in the four areas and we can come up with the concept of the library in 1984. Any now, I want you to do that. I want you to be able to participate in the development of this concept. Let's hope that we can be successful so that by tomorrow morning when we get back we can have some idea of what the library of 1984 will look like.

What I am going to ask you to do now is to move to the round tables. Please, as John said earlier, do not go with the people you traveled with. Do not go with your own group. Girls, meet some strangers. Talk over these problems and write down the answers for me. I will be around to pick them up just before punch time. Thank you.

I sat down and went over all the responses that you gave me yesterday. That is not really true. I went out and made merry too, and then came back and went over the responses. I accept complete liability, guilt and admit the errors in advance for what I have done in transcribing the answers you have given me to my own notes and then returning them to you or to the whole group. What I want to do this morning is go over the questions, i.e., the answers to the questions that I posed to you yesterday. Of course, some of those questions were given to more than one table in order to get a grouping of responses. I have brought those together and hope to give you now your impression of what the library of 1984 will be like within the Department of Defense. You will recall yesterday that we looked at conceptual analysis in the same framework as for any particular problem that needs to be solved in the future. I started with strategic analysis. Obviously, one does not do a strategic analysis in forty-five to fifty minutes, but the framework for it is valid. It can be used to solve any problem that has some element of futurity in it. The sort of thing that I went through with you would be done over and over and over again with a variety of people participating in the analysis - experts on all of the international problems, people who are familiar with specific parts of the world, people who are familiar with particular parts of the overall problem, scientists etc. I think that similarly in order to solve the problems that face librarians for 1984 that you would want to go over this particular conceptual analysis again and again and I certainly recommend that you do. I think from an Air Force, an Army and a Navy viewpoint that you



should look at this problem and continually massage it, as they say in the Department, until you come up with a series of findings that fit within the framework. Can you do this at your level? Yes, I think you can. You and your staff, be you at headquarters, or at command, or at base level, can go over and over and over the problems that you think will face in your particular library in 1984 until you have solved those problems.

Keep this sort of a framework in mind, in front of you as you work, so that you are constantly reminded that there are things that need to be looked at. This framework may not be the total answer to your problem. It may need to be modified. You may find ways to modify it, add things to it, drop things from it. Nonetheless, if you haven't a framework against which to compare your thoughts, to see whether or not you have thought through the entire problem, then you really do not have anything to guide you. I think we do need a guide in going through our planning process.

These are the questions that I posed to you yesterday. Let me tell you what we found as a group in our attack on the problem of the library in 1984. We feel that the military public will be a very demanding public. They will expect highly trained personnel in the library rendering services with an almost instantaneous response to the demands. They will expect sophisticated multimedia services to be available to them, and, of course, they want rapid accessibility to information not only in your library but in other libraries. The military technical specialist as an individual customer will expect a full and up-to-date library service within his technical specialty. He will perceive no difference between your particular library and all others. In other words, he will expect you as a librarian to be able to gain access to civilian sources and other military or Department of Defense sources. The demand here means you face him as a source of information, not just the information that you have but all information in which he is interested from a technical viewpoint. I think that's a highly interesting finding.

The librarian is going to be expected to participate more fully not only in the kinds of tasks that you have now but also in teaching and in research. You will be expected to furnish a full range of material for these activities including the throw-away concept that we talked about yesterday.

Libraries will be an important factor in programmed education. They will rely increasingly upon information networks to make their services available to each other. The library of 1984 must become an integral part of the military organization, more professionally involved in the military's missions and problems. From that I gain the impression that the library is not so closely involved today as it might be. I am not sure that that comment would hold true for all libraries. Consequently the library will have to be more mission responsive and provide services that are mission related in the Department of Defense. There will be less service in the library itself and more outside the doors of the library. The librarian will extend the service beyond the library facility itself. The librarian of that day will have to be qualified to accept and implement technological improvements as they come along and will have to be flexible and adjustable to the changing needs of the library itself as well as the customer.

I was unable to find a response to the question of the allocation of resources to competing activities and I am not certain that it was an easy question to answer. Let me provide some possible competing activities to the library. The television industry is coming out with multi-channel cable TV capability. Educational television in the next decade may become an important element of the industry. Is it not conceivable that I could through television gain some of the services that I currently go to a library for? How about cassette TV? Tapes will be available to me and I can put that tape into my television and then sit and listen and see whatever it is that I might particularly want. Is it not possible that some people will develop program learning tapes for cassette TV, that some people will develop research tapes for television? These commercial approaches may become a very significant competitor to the library. Departments such as Health, Education and Welfare or other agencies of the Federal government might well sponsor such things. These sorts of activities might make inroads on the library. Might it not be wise then for librarians to think of what the competitor might do and perhaps beat them to the punch. Come up with your own solution to new ways to get information to the customer. Here I perceive a comment made by an earlier group. As perhaps most appropriate the librarian will be extending service beyond the doors of the library. Let me go on to the military library itself. Facilities will be centralized and well planned to support the mission. Optimum use of shared services will be



made, facsimile services, bibliographical services, etc. Again I see the libraries tied together by computer information system networks.

Use of the civilian library as a substitute or sharer for the customer's purpose is an interesting concept. If so, we may lessen the quantity of general reading or general knowledge materials that we have in our military libraries and use civilian libraries in those areas. The emphasis will be more on quality and less on quantity in terms of libraries and people working in libraries, specialists, more narrowly trained people who will provide special support to the customer in the 1984 time period.

In the financial area there will be fewer libraries but they will be larger in scope. The library mission itself will be largely academic because of an expanding need for technical expertise. In order to do this a higher budget allocation than we are currently receiving will be essential.

What will be the role of the library in 1984? The library will be first an information research center. It will be mission oriented and specialized by subject. The specialized libraries will be tied together by an information network through the use of telephone, telegraph, teletype and the computer. Specialized libraries will be inter-dependent as well as dependent upon public facilities for peripheral services, educational, recreational, etc.

Networks, i.e., computer networks, will enable each librarian to make better use of smaller stocks. In other words, there will be less emphasis on each library having its own and instead each will stock specialized materials and make them available world wide.

There is a need for a computer language unique to libraries and I think that in itself will be a significant development. Finally, there is a need for computer services direct from the library to the user. Can a customer come in and operate a console within the library in order to gain access to the data bank? We have emphasized through all of these responses the telecommunication requirement, the information network between libraries. There will be less use of books and more use of cassettes, prints, tapes, etc. The library will be a part of an information dispensing network. We might even begin to think of the libraries in the information dispensing network as individual units or specialized nodes. Auto-indexing, auto-abstracting, and automatic search in a free text format will be available.

We were talking at one time in our school, AFIT, about the possibilities of using computer consoles to gain access to the Air University Library and the Air Force Academy Library. I would simply punch what I wanted in the way of some reference guide given to me and select a book, let's say at the Air Force Academy. Review the table of contents, review the index, if I wished. Turn to Chapter 3 and read it by computer. That may be unreality and far too time consuming by computer but there may be ways to facilitate this. Why should I have to travel to Colorado, much as I'd love to travel to Colorado, in order to read a book. These concepts that you people are bringing up are very forward looking.

How will knowledge be communicated? Your answers to these will have some direct computer interfaces with the customer. He will be able to gain direct access to your data banks through remote console control. There will still be a large leisure and recreational reading requirement and I would consider that as educational as well. How it will be satisfied apparently will be through access to civilian sources. Microminiaturization will be the emphasis in data storage. We are now using microfilm and microfiche. I believe with these new developments that we will be able to store a great deal of information and make it instantly available.

There will be few autonomous libraries. There will, however, be large information centers that can be queried by users through electronic and remote access means. There will be regional networks of special collections. A telephone dial system will be available to the customers for access to this information. There will be a greater use of films, video and audio tapes.

Now this is an interesting development. We will begin to make use of extrasensory perception, the sixth sense. I saw a movie, it was Saturday night I think, on extrasensory perception and there have been some current developments that provoke thought. I do not believe it is as far out as that, seriously. There was an experiment in ESP on the last trip to the moon. ESP like many other things has apparently more to say for itself than is simply to be dismissed by an off-hand gesture. What is available today shows a more than random or guesswork sort of correlation. There is something there and who knows but what science may develop the extrasensory perception or sixth sense by 1984. You kind of anticipated me because when you were talking about instant response or a twenty-four hour or a week response around the

world, I thought the ESP types have that now, or these people forgot the medium who will now give us directly all the people, all of the great experts that have died and will now communicate with them. I am not sure our minds will be able to absorb all of this. Women have been communicating that way for years but they call it intuition. Of course, there still will be in the library of 1984 the need for person to person contact, some books and other printed media we are using today.

The library as we know it today may fade but it cannot die. I get this as a thread of thought from all of you who participated that libraries are going to become more and more specialized. Libraries will no longer be generalized storehouses of knowledge. Instead they will become specialized. Yours may become a node in an information network and have specialized knowledge stored in it. Other members of the network, will have access to your collection and, correspondingly, you will have access to the knowledge stored at other nodes in the network. These small, highly specialized libraries of 1984 will be tied together by a computer information network. There will be world wide instantaneous service to the customer. Now these are the concepts which came out of one forty-five to fifty minute discussion period. I think if we went through it again and again and again that more would be revealed. This is the sort of thing that I have said you would need to do in order to satisfactorily make a conceptual analysis. It is a first stab. I think you have come up with a very interesting concept of the DOD libraries no longer as a series of libraries at different installations but as a DOD library system in which each member plays a special role. Services of the whole system will be available to any member, any customer world wide. I separate planning from forecasting as most people do. I think we have gone through the forecasting stage. We have identified what the environment will be in which the library will operate in 1984. We have talked a little bit about how that environment will affect the library and we have come up with a concept of the library for 1984. Conceptual analysis is the first step. There are other things that we would need to do in order to properly complete the conceptual analysis, but it is the first step.

We must know what the future is going to be like. We cannot always predict the future with accuracy and I do not think we could predict the future with one-hundred per cent accuracy. Planning goes all the way from guessing to some fairly knowledgeable approaches to the planning

problem, but you are never ever going to be one-hundred per cent correct. Nonetheless, when you do go to work on this kind of a problem, you begin to affect the future. There are people who say that you cannot do that. I hold that that is not so. When President Kennedy said in 1960 we will place a man on the moon by 1970, he was making the first step toward controlling the future. He controlled that future ten years later quite well as it turned out. We did in fact do what he had set out for us as a goal. We do in fact control the future the moment we begin to think about it. The problem I think in planning is who is doing the controlling. I notice in big organizations, and certainly the Department of Defense is the biggest of large organizations, someone is doing some planning. Unfortunately it is not always the person who is supposed to be doing the planning.

There are two kinds of planning in the Department of Defense. Neither of them particularly appeal to me but both are effective. One of them I call top-down planning. This is planning that begins at the top of the organization and is forced down to lower elements of the organization which are supposed to be operating independently. For example, the Department of Defense makes plans for the three military departments. The three military departments should be doing their planning. Instead they are being forced to conform to the plan being made by the next higher echelon in the organization. They have no opportunity to make their input. They are instead told what to do.

These departments are told what to do in a different way, bottom-up planning. Quite often the services will allow elements at a lower level, sometimes the lowest level in the organization, to develop plans independently. Then the people at the headquarters level correlate, bring together, all the plans of these lower level organizations and create a final plan. Neither of these procedures works very well. I think that if you are going to achieve the DOD information system: that you are talking about in the library of 1984, that you are going to have to have some planning done at the proper level, and this, of course, would be for the Air Force, the Headquarters Air Force level. I think that within the three services there will be a need to tailor the system to the specific requirements and finally join them together into this DOD system. There is a proper level in other words at which the system can be planned. You as individual library managers, however, can do your own planning with reference to the concept you have developed. Ask yourself, how will my library

fit? What is my specialty? What can I do to contribute? What will I need from others? If I drop some of the things I am doing today, how am I going to get those services rendered for my customers? Where will I need to gain access? What particular specialties will I need to have available to me? These are questions that you are going to ask yourself as you develop your own conceptual analysis at your level.

Planning consists, I believe, of three very simple questions once you have gone through the conceptual analysis. The first one is, where do we want to be? We have described the concept. We have come up with the description of the environment in the 1984 time period. The question is not specifically what do we want our library to look like but what do we want the system to look like. The first question one must answer is where do we want to be? What are our goals? Having done the conceptual analysis, you are quite close to having completed the answer to this one. It is now merely a problem of boiling down the general description of 1984 and distilling from it some very specific statements which we usually call goals or objectives, planning objectives. In order to do that we go through this sort of an effort.

We have through yesterday's activities taken a look at a conceptual framework and a conceptual study. Now as I said earlier the one hour approach was hardly what one would call a thorough study of concepts but nonetheless once you have done this repeated study, called in the experts, gotten other people to give you their opinions of the future, etc., you will then have defined the concept. The result of that is a series of objectives, as I just said. You have the framework, the four questions that I gave you to answer, i.e., the four major areas in which we ask questions. From that the studies result and from the studies we distill the objectives planned, a series of objectives that must be accomplished. A framework is developed for that plan. This can be done in terms of resources, of men, money, material and facilities. It can be done in any number of ways.

Finally then you determine how to accomplish the objective. I need a new kind of librarian in 1984. How am I going to get that kind of librarian? Perhaps schools are going to have to change their curricula. I need a different kind of building in 1984. How can I get that budgeted? Where will the money come from, the land, and this sort of thing? Is there a building available today that might be used?

There was the statement about a new language being required, a new computer language for libraries. Who is going to develop it? Who is going to state the requirement for it? That should come in the objectives plan. How will it be accomplished? In what time period will it be needed? These studies are needed in order to get you to that point.

The next step a planner has to make is to answer the second question in planning. Where are we now? If you do not know where you are now, you will not be able to properly plan for the future. It is as simple as that. Gathering data about your present operation is the key to planning. If you do not have it properly cataloged and available to you, then your plan will never succeed. If you do not know where you are now, you will never as a manager be able to properly guide the future of the enterprise that you are managing regardless of what it is. Yet, most managers today have difficulty answering this question. Why? Because we find that most plans today never seem to work. Why don't they work? Because they have not answered the question. They do not know where they are. Consequently when something changes in the future that you planned for, you do not have enough data available to you to compensate for the change. Contingency plans and other types of plans that we find in the Department of Defense all seem to be thrown in the wastebasket as soon as they are implemented because they are no good. The reason they are no good is because this question was not answered. It is as simple as that. Where are we now? Do a posture framework. The simplest way is the old management resource framework, men, money, material and facilities. What do you have in the way of resources? Can changes be made?

Finally, there is the third question, how do we get there from here? This is what most people call a plan. It is difficult in talking about planning and a plan to separate the two. I do feel that the plan is the simplest part of the whole exercise. You have gone through a tremendous mental gyration for some period of time in the conceptual analysis. You have gone through a lot of hard detailed digging in: answering the question, where are we now? What do I look like today? Exactly what is the description of the library of 1971? Having done those two things, I think the next step is relatively simple. How do we get there from here? We develop a plan to move from where we are today to where we want to be in 1984. I am today

a generalized, leisure, educational, recreational librarian. In 1984 I intend to be a technical specialist librarian in procurement. What is the difference? What do I have to do in fifteen, or fourteen, or thirteen years in order to reach that point? What is the first step? What do I need to do next year? What do I need to ask for in the way of budget changes? What do I need to ask for in the way of training programs for people? What do I need to ask for in the way of new facilities, etc., in order to make the first step in this fifteen year plan? That becomes your plan.

In the Department of Defense we make a distinction between planning and programming. It is highly artificial and recognized only within the Department. We call a plan a plan. And it doesn't become a program until it gets money. A program is a funded plan. There is a very distinct difference within the Department. Once you get money then you have a program and you can start implementing some of the things that you have decided in your plan to do. You can do this on a year to year basis. You do not necessarily need to have a fifteen year plan sold to the highest levels of management within the Department of Defense. You can sell the plan to yourself and then each year request in your one year budget authorization for those things that you know you will need in order to change your library in terms of the concept that you define for 1984. I think that given no outside occurrences that would defeat entirely your plan, such as a closing of your installation, that you would probably get there.

In other words, I again am encouraging you as an individual library manager to do this. Just as much as the three service librarians can do it, just as much the most senior people in DOD in library management can do it for the entire system. It can be done at any level. Obviously you need a performance framework. The performance framework, the conceptual framework and the posture framework should be similar. You are saying this is what I want to be like, this is what I am today, and this is how I am going to get there. This is your report card. This is how you tell yourself as a manager how well you are doing. The posture framework, the posture study, and the perform-

ance framework when compared tell you what measure of change or improvement you have made.

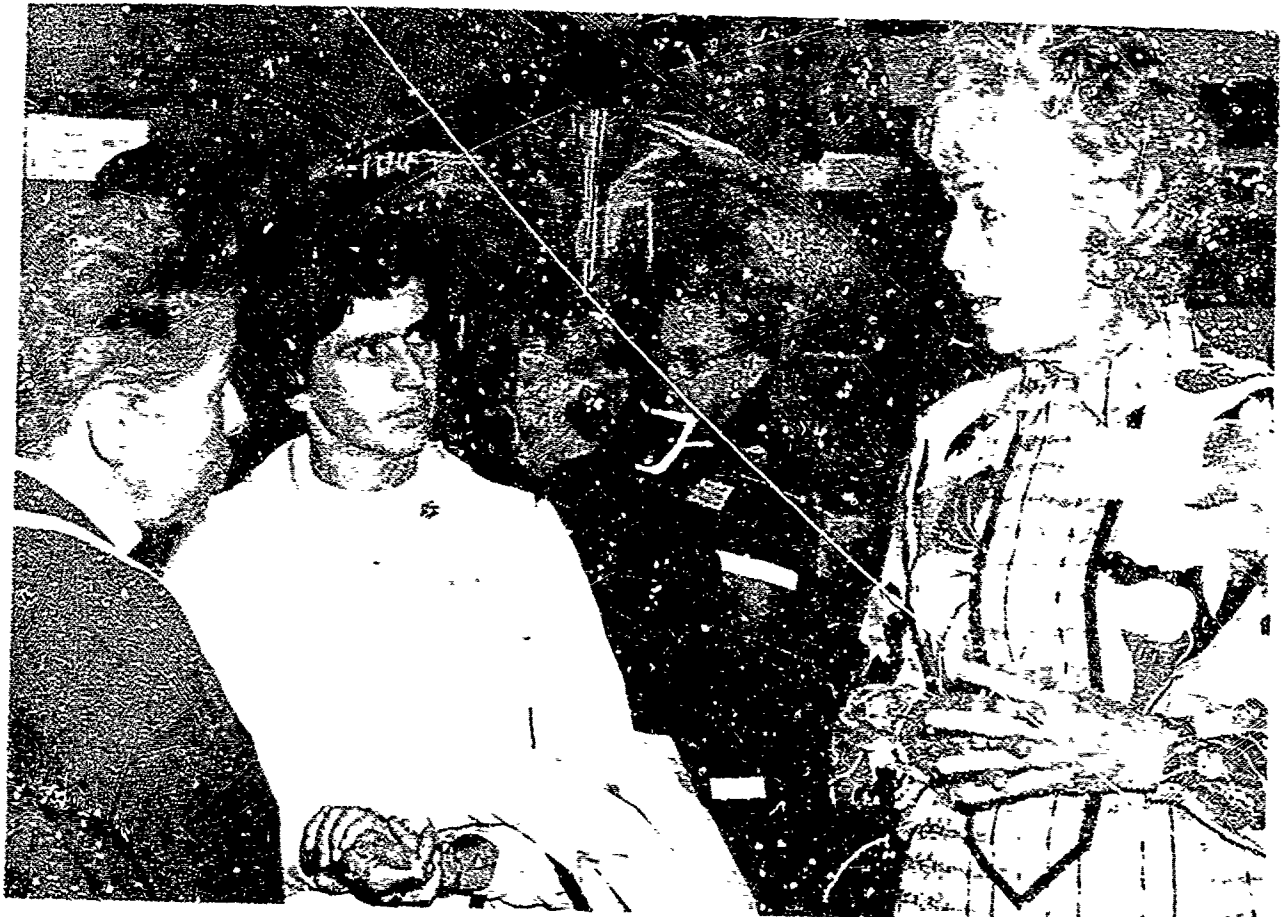
The development then in terms of planning is relatively simple. Ask yourself three questions: Where will I want to be? Where am I now? How do I get there from here? It takes an awful lot of work but I think that it is a relatively simple approach to what some people tend to make too much of a problem. Planning is not all that difficult. Planning is doing the same thing you are doing everyday with one difference. You are a library manager. You are paid to make decisions. If you do not make decisions, you are not a manager. Since you all are managers, you are making decisions; you are used to it. That is your job. The only difference between that job that you are doing day to day and what I have been talking about is that the decision you make in planning is a decision about the future. It might be one year away, it might be five, it might be ten, or as we went through in this exercise, it might be fifteen years away. The only difference is that you are in planning making decisions concerning the future. I think that is your responsibility as a manager.

We have studies available to us that confirm the theory that the higher the level the manager, the more money he gets because he makes decisions that affect the future operation of the organization. When you become that important, when you are deciding the fate of the organization, then perhaps you will be worth all the money that you will be paid. If you are only making decisions about what we are doing today, then you are going to be in a lower level in the organization. The higher your position the more you are responsible for that organization's future.

You people as a group, some 200 of you, have looked at the library for 1984. You say the Department of Defense library will be an information network, each library will be an information network, each library will be a highly specialized organization with instant accessibility to all of the other technical, highly specialized information parts of the network. I think that's a fascinating concept. I wonder if we will have it. Thank you very much.



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## IMPROVING LIBRARY JOBS THROUGH JOB ENRICHMENT

James L. Sheard  
Air Force Institute of Technology

No workshop on management would be complete without focusing attention on the people being managed. Certainly there is a need to understand and improve the creativity of managers and employers, there is a need to improve the decision making and problem solving capabilities of employees, and there is a need to plan and program for future operations of the organization. Each of these areas is the concern of other portions of this workshop on management of Department of Defense Libraries.

For this portion of the workshop, however, the focus will be entirely on the people of the organization. Specifically, we will focus on the people who work in DoD libraries. Our concern will be with yourselves, the people below you in the organization, and those higher than you in the organization. We want to begin to understand how you and those other people feel about your jobs and what can be done to improve those feelings. The concern with how employees of DoD libraries feel about their jobs does not result from any knowledge of negative attitudes on the part of library employees. Rather, our interest comes from the conviction that in every organization there are jobs which are not providing the maximum level of satisfaction to the employees in those jobs. In fact, we believe all jobs can be improved so that they provide people with greater levels of satisfaction and motivation.

Given this conviction that your job and other DoD library jobs can be changed so as to be more rewarding, we need to understand our objectives in this change process. What do we expect to accomplish in changing jobs? What do we mean by "improving library jobs?" Our involvement in the desire to change jobs comes from two sources. First, we are concerned about the people in the organization as individuals. Since we spend one-fourth of our week at the job and another one-fourth of the week thinking about the job, we would like that time to be a rewarding and satisfying experience. I'm afraid that for many people in our society, and perhaps many people working in library jobs, that time is not always that rewarding. Thus, our first concern is with helping to make those people happier about their jobs.

Our second concern, and one which is no less important than the first, is with regard to the requirements of the organization in which those people work. Each organization, in your case a library, has a mission to accomplish. It has an

objective which involves providing a service to its users. How well that service is provided depends upon the performance of the library staff. If the library staff is disgruntled and unhappy, the service will not be provided as adequately as when the same staff is motivated and energetic. Thus, we would like to improve library jobs so the people working in those jobs are excited and motivated about their work. When they feel in that way, the organization is going to benefit through the improved accomplishment of its mission.

Thus, we are concerned about people as individuals. We feel their life should be rewarding and we feel their jobs can and should contribute to that sense of fulfillment. But, we are also concerned about the accomplishment of the organization's mission. We do not find making people happy with their jobs to be contradictory to accomplishment of the organization's objectives. Rather, we see the two as going hand-in-hand. When people enjoy their work and are motivated by what they do, they will work harder to help the library accomplish its goals of providing a service to the users of the library and the Department of Defense as a whole.

This is a lofty goal, in the next few minutes we want to discuss how you can improve library jobs so that people find them more rewarding and also work harder in order to perform their duties. Not only do we want to discuss those procedures, but we also want to determine some specific guidelines for improving various kinds of library jobs. In order to accomplish this goal, I will present some concepts about employee motivation and job enrichment which have been successfully applied in a number of organizations in order to improve jobs. You will then have an opportunity in your small groups to apply these concepts to the improvement of a specific type of library job.

We first need to understand the terms job satisfaction and motivation. Job satisfaction is used to refer to an individual's attitude about his job or some part of his job. It involves answering the question, "How happy are you with your job?" or how happy are you with a specific dimension of your job. In the latter case, we might ask such questions as "How happy are you with your salary?", "How happy are you with your boss?", or "How happy are you with your fringe benefits?" Thus, job satisfaction is a *status quo* kind of concept in that it asks what is the present state of feeling about the job.

Employee motivation, on the other hand, is a more active kind of concept. Motivation involves behavior and action on the part of the employee. That activity is the behavior required for an individual to satisfy some need by obtaining some goal available to him in his environment. Needs are internal to the individual and involve such things as hunger, thirst, or recognition. These internal needs can only be satisfied by some activity to obtain a goal which will satisfy the need. That goal may be food, drink, praise, or any one of thousands of ways of satisfying the particular need for the individual.

This process of behaving in a certain way in order to obtain a goal which will satisfy a need of the individual is the process of motivation. One can readily recognize the complexity of the process of employee motivation when you consider the many needs of individuals, the many goals which may satisfy any given need, and the many alternative behavior patterns which might be used to obtain a single goal. In order to understand this complex process, we have to begin organizing what has been learned about the motivation of employees.

One way of organizing our information is to study what kinds of factors lead to high levels of satisfaction and job motivation as opposed to those factors which lead to job dissatisfaction. As it turns out, these two sets of factors are very different. To illustrate this point, we have asked the workshop participants to describe events or situations that have led to especially good feelings about their jobs and to also describe events or situations that have led to especially bad feelings. Typical of the *events leading to especially good feelings* are the following examples:

1. People are so appreciative of the help you give them.
2. Working out an improvement plan in implementation of a study done on the library.
3. Training and educational opportunities sponsored by the post.
4. Having readers tell me that since I've been there the library has changed so much that old-timers can hardly recognize the place.
5. Securing a special grant of monies to purchase needed materials.
6. A letter thanking the library staff for service given for a special project.
7. Being able to reorganize the library as I thought was necessary.

8. Commendation about excellent service by user who was pleased and stated amount of time saved by his calling our library.

9. Recently the library completed a two-year reorganization project.

10. Finding "hard to find" materials that were supposedly unavailable to several borrowers.

The conference participants provided the following examples of *events involving especially bad feelings* about their library jobs:

1. When the administration will not recognize the need for more personnel.
2. Space we thought would be allocated to the library was given to another unit.
3. Lack of money to keep the collection sufficiently up to date.
4. My inability to find a satisfactory solution to some long-term personnel problems.
5. Lack of support from superior.
6. Increases in questionable paper work.
7. Office shorts forwarding suggestions for staff cuts without consulting librarians.
8. Insufficient communication from top level regarding operations of overall mission.
9. Work layout and furnishings.
10. Co-worker refused to co-operate in making out a task list for a work simplification project.

We shall call those factors which people most often suggest as leading to high levels of motivation, "motivation factors." Those situations which people describe as being very rewarding, satisfying, and motivating usually involve the attainment of achievement, recognition, responsibility, or growth; or involvement in the work itself. Let's look at each of these motivation factors in terms of what kinds of events would be classified in each. By *achievement* we mean having the opportunity to do something which is worthwhile. In these situations, the employee has accomplished something worthwhile. *Recognition* involves being viewed favorably by other people, whether it be the boss, fellow workers, superordinates, or people outside the organization. It involves being praised or rewarded for what you have done on the job. The *work itself* as a motivation factor means that the employee enjoys what he is doing on the job. That is to say that the duties are rewarding in and of themselves. *Responsibility* involves being held accountable for



the completion of some aspect of the job. In these cases, the employee knows that getting the job done is dependent upon himself or herself. And finally, *growth or advancement* means that the employee changes and develops his skill or ability through the completion of the duties of the job. This does not necessarily mean that the individual is formally promoted in the organization. He or she may grow as a person without being formally promoted in the organization.

We must begin to understand why these factors tend to be involved in positive, satisfying work experiences. If we study these motivation factors, we find that they have one common characteristic. They are all involved in the actual performance of the duties of the job. That is to say that the things that make people happy about their job tend to in some way involve the activities of "doing the job." People make achievements, receive recognition, have responsibility, and attain growth through the doing of the job itself. These activities are the typical ways people can attain job satisfaction and motivation if the job is properly designed and the employee properly managed. We will discuss the proper design and management of jobs in order to maximize these motivation factors later in our discussion.

Let's now look at the other side of the picture of employee motivation. What are the factors that tend to lead to dissatisfaction with a job? The research in this area suggests that the factors which lead to dissatisfaction are quite different from those leading to satisfaction and motivation. We will call the factors which lead to dissatisfaction, maintenance or hygiene factors. The factors people offer when asked to describe situations in which they felt unhappy about their jobs tend to involve Working Conditions, Company Policy and Administration, Supervision, Salary, and Social Relationships.

With regard to *Working Conditions*, people may express negative feelings about the physical environment in which they work. That is, the lighting, office facility, or equipment may not be adequate and thus lead to negative feelings. *Company Policy and Administration* refers to the rules and regulations all organizations have in order to conduct operations and handle personnel. *Supervision* involves the way a boss provides technical information to his subordinates and the way he handles social relationships with them. *Salary* is frequently mentioned as a source of dissatisfaction. People may be concerned with the amount of pay or the way in which pay increases are handled. And finally, *Social Relationships* involves the inter-

personal situations which arise in all organizations. It is not uncommon for these interpersonal situations to lead to negative attitudes toward the job.

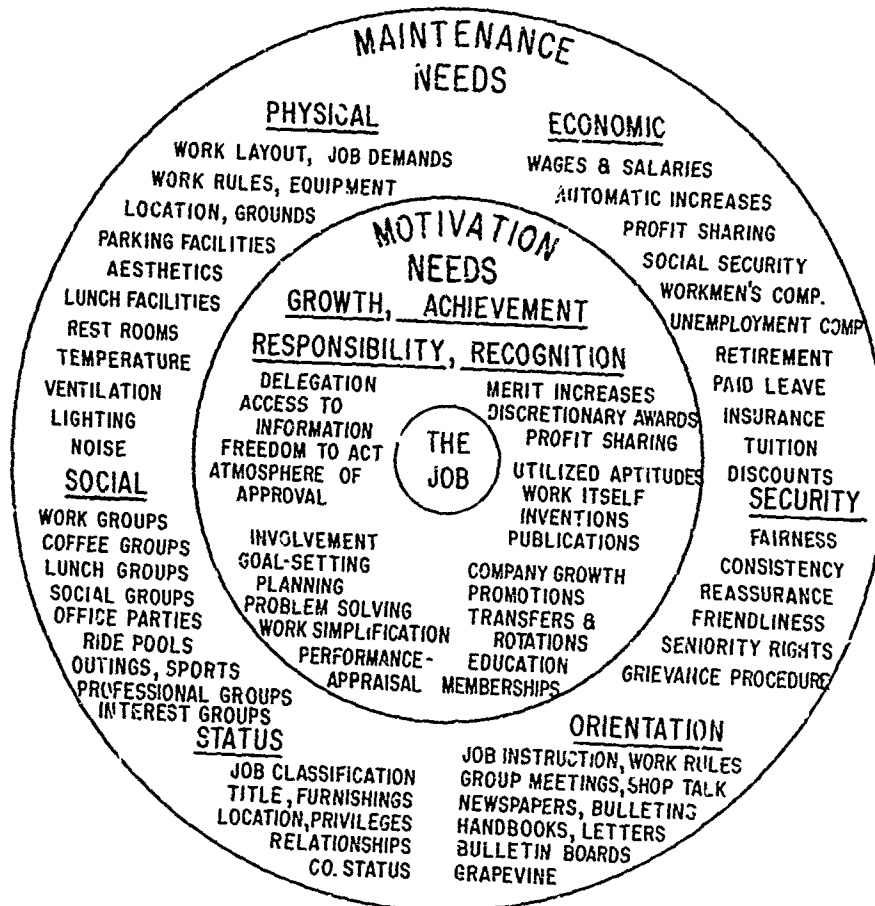
We must also understand why these types of factors lead to negative feelings on the job. How do they differ from the positive factors discussed earlier? The maintenance factors have a common characteristic which seems to classify them together. The maintenance factors *do not* involve the doing of the job. Rather, they are involved in the job environment or context of the job. They rarely, if ever, are involved in the performance of the duties of the job by the employee. For example, the job can usually be performed despite the working conditions or company policy. Interpersonal relationships with the boss or co-workers may involve non-work matters. They are social discussions and activities. Salary is usually paid despite how hard we work. It is paid periodically for satisfactory performance rather than having any relationship to minute by minute involvement in the doing of the job. Thus, while these maintenance factors are a part of every job, they cannot be said to be an actual part of the real duties of the job. They are peripheral to the actual doing of the job.

The research into situations people have described as dissatisfying have led to some interesting findings regarding these maintenance factors. While they are often mentioned as leading to dissatisfaction, they are rarely mentioned as leading to job satisfaction and motivation. Thus, the factors must be adequately provided in order to prevent dissatisfaction, but large amounts of these factors will not lead to high levels of motivation. For example, working conditions must be adequate to allow for performance of the job, salary must be high enough to keep people on the job, and the boss must be pleasant enough that his subordinates do not quit. However, these factors can only maintain a neutral level of attitude. People are not going to work extremely hard just because they have a nice building, or a good salary, or a nice boss. These factors can only "maintain" a neutral level or in the medical sense of "hygiene" they can prevent dissatisfaction. To do more than maintain this neutral level requires the proper application of the motivation factors.

The motivation wheel shown in Figure 1 summarizes and depicts this relationship between the job, motivation factors, and maintenance factors. The core of the motivation process is the job. The duties and the activities of the job lead to motivation through achievement, recognition,



FIGURE 1.  
RELATIONSHIP BETWEEN AN EMPLOYEE'S  
MOTIVATION AND MAINTENANCE NEEDS  
AND THE JOB HE PERFORMS



Job satisfaction and the motivation to perform at one's highest potential depend on the fulfillment of motivation needs. These motivation needs include responsibility, achievement, recognition, and growth. They are achieved through the "actual doing of the job" and the rewards shown in the circle surrounding "the job". The fulfillment of the maintenance needs, however, can only prevent job dissatisfaction and does not lead to high levels of motivation and job satisfaction. The maintenance needs are fulfilled through the dimensions shown in the outer circle. They are considered to be "extrinsic to the actual doing of the job" since they involve factors in the context or environment of the job. While they have little motivational value, their fulfillment is essential to avoid dissatisfaction.

responsibility, and growth. Peripheral to the job are the factors which involved the context in which the job is done. These factors, including working conditions, company policy, supervision, salary, and social relationships must be adequately met in order to prevent dissatisfaction. However, they rarely lead to positive motivation to perform on the job.

This kind of an organization of the factors involved in job satisfaction and dissatisfaction provides us with an indication of where we should begin to improve library jobs. It suggests that we should first make sure the maintenance factors are adequately met. This should be a concern of every manager and of the personnel function of the Department of Defense. But we should not over-emphasize these factors. We should move on to the area that will lead to real motivation and improved performance by employees, the area of the work itself.

The concentration of efforts to change the motivation factors in order to make jobs more rewarding to people is called job enrichment. Thus, we get back to the original title of this section of the workshop, "Improving Library Jobs Through Job Enrichment." What we will be concerned with for the remainder of this portion of the workshop will be the improvement of library jobs through an increase in the motivation factors which those jobs offer to the employee. Increasing the opportunity for achievement, recognition, responsibility, and growth which people experience from their jobs involves changing (1) the structure of jobs, and (2) the ways of supervising the people in those jobs. If this sounds like an impossibility, let me assure you that improvements can be made easily and without cost to the boss or the organization. All it takes is an understanding of what people want from their jobs and a commitment on the part of the boss and the subordinate.

You can see that job enrichment is motivation through the work itself. What we are attempting to accomplish is to make jobs more rewarding to people by making the work itself more motivating. We have described the process by which jobs are motivating through opportunities for achievement, recognition, responsibility, and growth. We could say to you that as managers of people you should provide them with the opportunity to obtain each of these factors on their jobs and in that way, those jobs will be more motivating. That is good advice, but I do not think it gets at the real hard core issue of what you can actually do to enrich jobs. As a manager, one could still ask, "What changes can I make in the structure of jobs or my way of supervising jobs under my supervision?"

I believe we can come closer to that hard core issue of how to improve library jobs through job enrichment by applying the set of principles for enriching jobs listed in Table 1. It is this set of principles that I would like you to use in your workshop groups in order to develop statements of how to enrich the particular library job assigned to your group. Let's take a closer look at each of these seven principles and how they involve changing the work itself in order to make it more rewarding.

The first principle is to "*Remove some controls while retaining accountability.*" By this we mean, how can the boss remove some of his control over the subordinate while still keeping the subordinate accountable for proper performance of the duties. As an example of the application of this principle, let's look at a typical process in most organizations including libraries. Some librarian completes the budget for purchases of some category of objects, like new books in the area of business and management. What happens to that budget? It is probably carefully reviewed by the librarian's supervisor and each portion of the budget has to be justified. This review and justification is a form of control. In order to enrich the job, you can remove some of that control and allow the subordinate the opportunity to complete and submit the budget without extensive review by the supervisor. But the subordinate is still held accountable for the budget. That is to say that he or she is responsible for the proper distribution of expenditures according to the needs of the library users. What is the impact of this removal of control while retaining accountability? The subordinate will probably do a better job of preparing the budget in the first place because they know they will have to "live with" the budget for an entire year. The boss will not have the "headache" of carefully checking out each detail of the budget. His time can probably be spent on other important activities. Through this example we have enriched both jobs, that of the boss and that of the subordinate.

Let's look at another principle, "*Increase the accountability of individuals for own work.*" Our example of the budget will also serve to illustrate this point. In fact, as we proceed through these principles, we will find several principles may be involved in any one improvement in the work itself. In the budget example, the subordinate will have increased accountability in preparing the budget by himself or herself in that they will now be accountable for meeting the needs of the users throughout the year. When the boss used to review the budget in detail, the final accountability or

Table 1

## PRINCIPLES FOR ENRICHING JOBS

Principle	Motivators Involved
A. <i>Remove some controls</i> while retaining accountability.	Responsibility and Personal Achievement
B. <i>Increase the accountability</i> of individuals for own work.	Responsibility and Recognition
C. Give a person a complete <i>natural unit of work</i> (module, division, area, and so on).	Responsibility, Achievement, and Recognition
D. Grant <i>additional authority</i> to an employee in his activity, job freedom.	Responsibility, Achievement, and Recognition
E. Make <i>periodic reports</i> directly available to the worker himself rather than to the supervisor.	Interpersonal Recognition
F. Introduce <i>new and more difficult tasks</i> not previously handled.	Growth and Learning
G. Assign individuals <i>specific or specialized tasks</i> , enabling them to become experts.	Responsibility, Growth, and Advancement

responsibility fell on the boss. Now the subordinate is fully accountable for that budget and its impact on the service the library provides to its users. Put yourself in the position of this subordinate. Can't you envision yourself working harder to complete a budget you can call your own than you would if you knew the boss would make the budget his responsibility by making detailed changes?

Another principle for enriching jobs is to "Give a person a *complete natural unit of work* (module, division, area and so on)." The problem here is that we quite often divide work into units which do not make sense in terms of natural work units. When we provide people with a natural unit of work, they are better able to obtain responsibility, achievement, and recognition through the completion of the task. Take the very simple example of assigning people to return materials to the shelves. In that situation, you want the employees to reshelve the materials neatly, rapidly, and accurately (in the right location). I believe those objectives would best be met, and the employee would be happier, if each employee had a natural unit of work for which he was responsible. Perhaps that would be a floor of the library, an area, or some other logical subdivision. In this way, he could take some degree of pride in doing a good job on "his section" rather than a haphazard assignment to various parts of the library. Perhaps this example is relevant to your library situation. The key point is, "What are the natural units of work for various jobs in libraries?" In your work-shop group, you will want to search for ways to enrich the job through natural units of work.

The fourth principle is to "Grant additional authority to an employee in his activity; job freedom." Too often we bind people's hands on their jobs by not giving them the authority to take action on their own. Our first example of the preparation of the budget also fits this category of granting authority. In that case, the subordinate was given additional authority with regard to the preparation of the budget. Many other examples are certainly relevant to library jobs. Authority may be needed to check out books to patrons for more than the normal period, to purchase new materials for the library, to buy a piece of reproduction equipment, or to hire a GS-5 instead of a GS-4. When we grant this authority to subordinates, we are allowing them additional opportunities for responsibility, achievement, and recognition.

Still another enrichment principle is to "Make periodic reports directly available to the worker himself rather than to the supervisor." There are unique kinds of periodic reports that are used in almost every type of job and organization. A simple example of how this principle might be applied could occur in an academic library setting. In some schools, the number of students enrolled in a course, and perhaps the names of the students, are reported to the library so that materials may be prepared for distribution to those students. Typically that list is provided to a supervisor who would pass it on to the librarian or aid responsible for preparing those materials. This principle would be applied if that report were made available directly to the individual who was to prepare the library materials. In this way, he or she would obtain the recognition of being responsible for that aspect of the library function.

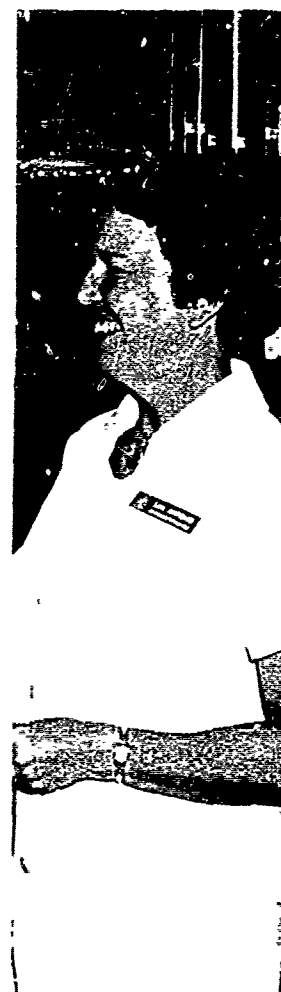
As people grow with their jobs, the supervisor should "Introduce new and more difficult tasks not previously handled." In this way, each employee is able to continue to expand his own skills and awareness of the many dimensions of the library's function. Here again the examples would be specific to each type of library job and each individual's stage of development. Individuals may be given supervisory responsibilities, even at the lowest levels of the organization. Library aids may supervise newer library aids or part-time employees, for example. Or an individual who has not previously had this responsibility may be assigned to help students complete the Defense Documentation Center forms required to obtain a bibliography on a given subject. And as a final example, a librarian who has not previously done so may be given the opportunity to prepare a new briefing or demonstration of services available to library patrons.

Our final principle for enriching jobs is to "Assign individuals *specific or specialized tasks*, enabling them to become experts." People like the opportunity to become proficient in some area and to have others recognize their expertise. If properly structured, library jobs can afford these opportunities. As a library patron, I have observed reference librarians who have become extremely knowledgeable about the information available for students in certain academic areas. At the School of Systems and Logistics, some of our reference librarians have become knowledgeable about every aspect of the literature on logistics management.

Students and faculty have come to recognize and appreciate their ability to find materials within this area. That specialized skill should carry with it the opportunity to achieve responsibility, growth, and advancement. I have observed this same kind of specialization and expertise at the Air University Library at Maxwell AFB. There, reference librarians have become experts in helping students find and use materials which are specific to such courses as Squadron Officers School, Academic Instructors Course, or Air War College. I would think that these librarians find this experience rewarding in that they are recognized by students, and hopefully by their supervisors, as being experts whose advice and help is very valuable.

These seven principles suggest ways in which jobs can be restructured or people can be better managed in order to make their jobs more rewarding. In each case, the emphasis is on the work itself, what the individual does in the performance of the duties of the job. Thus, these principles deal with the motivation factors as described by Herzberg. Their careful application, with an understanding of Herzberg's concepts, can lead to the objectives with which we began this presentation. That is, they can lead to (1) improvement of the satisfaction and motivation of employees, and (2) better accomplishment of the organizational objectives through its human resources.

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## DECISION MAKING IN DOD LIBRARIES

John W. Demidovich  
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Ladies and Gentlemen, at this time we will take a look at the area of decision making. Rip Rider, Jim Sheard and I have been alluding to decision making for that is what you are paid to do. Whether you are a librarian, an information specialist, or whatever your title may be, when you get down to basics, you are paid to make decisions. So, we are going to spend this next session taking a look at one methodology. Keeping in mind that on the market today there are some thirty to forty different problem solving, decision making packages, some of you are probably thinking, "well, how do you think I got to where I am today if I were not a successful decision maker?" I think it is a healthy exercise from time to time to take a look at our decision making personalities. Is it current? Is it up to date? Are we using the best methodologies? We chose one that is catching fire in industry which is referred to as the KT method. It is named after Charles Kepner and Benjamin Tregoe.

All of this is in the handouts for you. I keep promising the handouts which I am going to produce right now. When you obtain your copy, do not open or turn to any of the pages. There is an unclassified, non-graded examination I want to administer this morning. You will need a pencil or a pen to participate in the non-graded exercise. It is about two minutes in length. I will keep track of the time. If you have a bleeding ulcer, a heart condition, or are on the verge of a mental breakdown, please do not take it. It is not that important. Let us take a look at the first page. On this first handout there are eleven creative thinking techniques. Yesterday we talked about one, the principle of deferred judgement. There are others. Pick one that you feel comfortable with. Pick one where you can talk the same language. I think it is a good idea in your library operations to have all the people who work in your library come into your conference room and take time out to do some creative thinking. Take some problems that have been perpetual problems, that have been bugging you, that you have been running away from, and attack them. Get a hand on the problem definition and then go into an idea generation session. If you can employ one of these techniques, you can give birth to an idea bank. There is no reason why we should not have idea banks. We need a bank to store money and I look at ideas as a form of money. So, try one of these techniques.

The books, *How to Create Some Ideas*, by Jack W. Taylor and *Applied Imagination* by Alex Osborn, are good starters if you have no experience at all in idea generation techniques.

Now the next page is self-interrogation. This is the checklist developed by the engineers at MIT that I talked about yesterday. If you are looking for ideas and you have a mental blackout, this list can serve as an idea spurring checklist. No one knows what this will trigger in the minds of the people assembled to work on a common problem. Try it.

On the back of that second page we find Murphy's Laws. You know man is a wonderful creature but he makes many errors. Now we find ourselves in man-machine communication. I feel that Murphy's Laws continue to come into the plan. This is a list I have collected over the years in lecturing. For years I thought there was only one, the first one: In any field of scientific endeavor, anything that can go wrong will go wrong. This was taught to me by my friends in Strategic Air Command who handled nuclear weapons. Then I added to the list: No. 2, Left to themselves things always go from bad to worse. No. 3, The one that will go wrong is the one that will do the most damage. No. 4, Nature always sides with the hidden flaw. No. 5, Mother Nature is a bitch. No. 6, If everything seems to be going well, you have obviously overlooked something. No. 7, Don't worry about nothing, ain't nothing going to be all right. No. 8, If you remain calm in the midst of all this confusion, you obviously do not understand the situation.

There is one that I am going to share with you that is not on this list. It goes like this: If you are up to your ankles in alligators, it is hard to remember the original objective was to drain the swamp. So be aware of these laws because in any good system, I do not care how well you plan it, in the execution phase these laws come into play. Be aware of them.

The next handout is the one which has the two minute exercise. It is non-graded and I can only read the instructions once. You need a pencil or a pen. In the following simple arithmetic problems, a plus sign means to multiply; a divide sign means to add; a minus sign means to divide; and a times sign means to subtract. Complete the problems following these directions. I cannot answer any

questions. Please commence. Swearing will not help! Please stop. How many completed the exercise? Fantastic! I think I gave you three minutes instead of two. Maybe that is why you finished it. The main reason for giving this exercise is for you to discover for yourself. That is the best way to learn, self-discovery. When you learn this way it stays with you. We are creatures of habit and habits are hard to break. We have been taught to solve these problems in a certain sequence all our lives. Then we have to go all the way to San Antonio to run into a nut called Demidovich who wants us to change. It is not easy to change life-long habits. It takes practice, practice, practice. I like to play golf and I can remember Julius Boros being asked in a television interview after he won the Buick Open whether he thought winning golf tournaments was a matter of luck or skill. Julius Boros replied that the more he practiced the luckier he got. So, recognize that these new management techniques which are being made available to managers are going to be strange. You are going to feel uncomfortable and it is going to take practice in using these tools so that you can become a better manager.

Let us turn to the back of the arithmetic test and take a look at the scientific method of problem solving. This is something that I think you can implement rapidly. It is the worksheet titled Selling the Idea. Here is a worksheet that is worth a lot of money to you if you can discipline yourself to use it. Regardless of where they come from, ideas do not sell themselves. It takes people. An idea that is not acted upon is like an ICBM missile. It is a lot of missile without fuel. It has a lot of potential but it will never get off the ground. So, use this worksheet. Before you go running to management with an idea, fill out this worksheet. Commit it to writing. Force yourself to complete it. Share it with your people so that they can fill out these worksheets before they come running to you with half-baked ideas. This will prevent half-baked ideas from being presented to management. The idea that you want to sell, or your subordinates want to sell, or your superiors want to sell, enter on the line marked Selected Idea. Whom do I need to convince of its value? Put in that person's name. Let us deal in specifics - General Smith, Commander Jones, Mr. Nixon, Harry Nixon that is. On the third line put what you want that person to do with the idea. Have you ever been to a boss with an idea, you enthusiastically presented it, you sold it, and he approved the idea. Then what happened? You looked at one another. That will kill an idea. Go in there knowing what you want the boss to do if it is approved. Be prepared to answer that question.

The center part of the form is for the advantages of this idea to the person to whom you are presenting it. Look through that person's eyes and think of how you are going to make every advantage obvious to him. Do not go in with just a mouthful of words. Have some examples, have some backup testimony, have some comparisons, have some statistics, have some congressional records, have some past budget cycles, have some historical data to support your assertion. Just do not go in with a mouthful of words because it is hard for some of our superiors to visualize the advantages that we are trying to present to them. Then, on the bottom part of the form list the debits. You know that he or she is going to say it is not in the budget. What is your response to that? Have you considered that we do not have enough people? What are you going to say when he tells you that? If you are not prepared, I can predict that you are going to be kicked out of the office. You are going to be wasting his time; you are going to be wasting your time. So, here is a worksheet to help you avoid presenting half-baked ideas to your superiors. And please share this with your subordinates.

Everything we have been talking about here is knowledge and much of it is old stuff to you. We were taught that Francis Bacon said that knowledge is power. That is a lot of baloney. We have a lot of loose educational derelicts in our country today. They have a lot of degrees, they have a lot of knowledge, but in their cases, it is not power because they have failed to apply it. It is applied knowledge that is power. That is the supreme test. What are you going to do with this stuff when you get back to the job? Are you a better manager? Will you be a better librarian? Will you try to cover these things that we have shared with you? That is the supreme test. If you just put on your personnel record that you attended a conference in San Antonio, then you have not grown much in the three day conference.

Now for today's activities. We want to get into decision making right away. Keep in mind that this methodology is not a panacea: it is just one method. You may like parts of it. You may not like any of it. You may like it all. Take a look at this methodology. Is it better than what you are using now? If you in your judgment say no then continue the way you have in the past. You should be healthier as result of this experience.

I want you to define four terms. These will not be collected. This is for your own records. These are four terms that we use very glibly, very loosely in problem solving and decision making. We want to be sure that we do not contribute to the man-

agement pollution problem that we find in many of our organizations because of the misuse of these four terms. I want you to define them in your own words. Do not worry about spelling or grammar. The first word is objective. What do you believe the word objective means to you? What is an objective? A goal, a target, what is this word objective? Write these four words rapidly and then I will let you work for about five minutes. The second word is fact. What is a fact? Give me the facts, boss, give me the facts. We have a problem. The third word is problem. What is the definition of a problem? And the last word is decision. What do you think the word decision means to you? The four words are objective, fact, problem, decision. Five minutes, please. We are going to use these four terms through the next hour when we take a look at the Kepner-Tregoe approach to problem solving and decision making. Before you go to lunch, it is hoped that you will know the different fact processes that are involved in problem solving and the different fact processes involved in decision making. We are going to dramatize. We are going to clear the air once and for all. I think that for years managers like myself have used these terms interchangeably and we want to be sure that you recognize that there are differences.

Decision making takes up a lot of your time. Colleagues of mine who have been studying this area tell me, and again this is only an estimate, that out of every hour that you and I spend on the job, we spend 70% of each hour either preparing for, making, or following up decisions. If this is true, how many minutes are involved in each hour in this activity? Forty-two. Thank you, sir. This is non-graded. You are authorized to give me gut responses. We spend a lot of time in this area and so we want to take a look at the decision making process. We are concerned with three time references - the past, the present, and the future. Notice that many managers with problems are reacting to unplanned change. They spend a lot of their time reacting to unplanned change. This suggests the past. We spend a lot of time worrying about something that happened in the past. We are certainly concerned with the present and, therefore, have very little time left in anticipating, shaping, and controlling the future. We devote very little time to planning. We never have enough time for the future. Time is a constraint in decision making. It is a fact, Ladies and Gentlemen, that we have 86,400 seconds in a day. That is a fact. You do not have any more. It is not cumulative. If you do not use it today, you cannot add it to tomorrow. Time is a very important

resource. All of us do not work twenty-four hours a day. Most managers only work eight hours a day so that 86,400 seconds is reduced to 28,800 seconds. Now are you productive all this time? In an article that appeared in the Wall Street Journal in June this year, a plant maintenance crew documented the fact that 67% of their time is non-productive. What is your non-productive time as a manager when you only have 28,800 seconds in a day? What is the non-productive time of your assistants? President Nixon in his Labor Day address mentioned that as a nation we have to become more productive if we are going to compete with the Japanese and the Germans. As a nation we use a lot of it reacting to unplanned change. We want to reverse this and we think the Kepner-Tregoe method can help you.

The first step in a KT process is reflected in this slide on objectives. Objectives precede problems. Many managers give me a lot of argument on this point. They say that problems precede objectives. Well, first of all let me ask you from the audience what are your definitions of an objective? Aim, target, something towards which to strive, what I wish to accomplish, improvement of something, the end purpose of a plan. These are good terms for an objective. The quotation that Rip Rider used yesterday applies here: "If you do not know where you are going, any road will get you there." Because our objectives are not clearly defined, they are not understood. We waste time; we waste energy; and we squander our resources. So, the first step here is that we must know what results must be accomplished. We have to ask these questions. What must be accomplished? What do we want to accomplish? What resources are we willing to spend? This does not come free. You have to identify the resources that you have to spend. We have to determine what is available and what we are willing to spend. What do we want to protect? Where do we want to maintain our systems? Along the way we have these different idea spurring questions that will help us address ourselves to objectives. This is not easy. In industry today there is a new buzz word called MBO, management by objectives. There are some good books in this area. George Odiorne has a book, *Management Decisions by Objectives*. The author is Dean of the Graduate School of Business at the University of Utah. Pick that book up if you have never had any experience in defining objectives. If you do not have any objectives then this problem solving methodology or decision making methodology will not be much help. You are going to be wasting time. You are going to be wasting resources if you



do not know where you are going. This is a very, very important step. It is something that is not easy to do because we have a hierarchy of objectives. We start with our President, the Commander-in-Chief. He gets his objectives from the people. He in turn imposes objectives on Mr. Laird in the Department of Defense. Mr. Laird imposes objectives on the different services. The secretaries of the services impose objectives on the chiefs of staff. They in turn on the major commanders and all the way down the line until it gets to you, the librarian. Are all these objectives clear? Are they in conflict? You have to take this hierarchy of objectives from the President of the United States, the Commander-in-Chief down to your library organization. Somehow, somehow you have to answer these questions as to the way you are going to operate your library. This is not easy because there are conflicting objectives. Your people have different goals and you have to resolve this. That is a challenge. So, do not sluff off on objectives because it is an important step.

Once you know where you are going, then the next step is the situation analysis. You know in our day to day management with these alligators loose nipping at our ankles and we are getting flack from all our customers, from the entire post, we have a lot of things bugging us. In this methodology we ask in what environment do you find yourself. What are you concerned about? What situations do you feel compelled to act upon? We have uncovered in this area a tremendous exercise and we would like to share it with you. You could do it publicly or privately. If the morale is low in your library, if there is a lot of complaint, if there is a lack of communication and the staff is picking at one another, then get them all together, close the door, and subject them to this public catharsis as I call it. You have to defer judgment and tell them that you want them to get everything out of their systems as to what is bad about the operation of your library. You have to be sure that they recognize that they will not be penalized for sharing their feelings, that they will not read about it in their appraisal reports or in their effectiveness reports. You have to somehow get this sincerity across. A tape recorder is a good device to have in a room. A chalk board is a good device on which to record these complaints. The big thing is that you must have deferred judgment. If you can get the people to release all of the feelings that they are harboring in their systems and that are contributing to their ulcers, to their heart conditions, and to their frustrations, if you can do this. I think you are well on your way to find out what is keeping your organization from being the best in your respective service.

I think it is a healthy exercise for you as a librarian at least once a month to sit in your private office with the door closed and contemplate your operation. Commit it to writing. This is the key. Commit it to writing. Words are gaseous. We forget what we uttered yesterday; so, commit it to writing. Forget about grammar; forget about spelling for this exercise. We have too many hang-ups on a lot of stuff when we are trying to get some big jobs done. We get all hung-up on spelling and grammar. For this exercise do not get tied up in it. You cannot do this for long - ten, fifteen, twenty minutes. Again you have to have some time period. Once you have these concerns whether from the group or from individuals committed to writing, the next thing you have to do is establish a priority. Here are all the things that people are complaining about. Which is the most important one? We have to have a priority. You know time is a constraint. I only have so much energy. I cannot be everything to everybody. What is the hottest thing? What is the major concern that I should address myself to? I might have fifty. I cannot work at all fifty things. The Lord only gave me two hands and two legs and one mind. I cannot pacify everybody. And so we have a methodology here that will help us to arrive at a priority concern. We have to capture the thought and make it visible. How can we determine which is the most important.

In using the Kepner-Tregoe or any other method, we should use hard facts. What is a fact according to your definition? Truth, data, a piece of information, information that cannot be refuted, a basis for objectives. Some of these words are fine but we may want to take a look at the others. George Odiorne in his book, *Management Decisions by Objectives*, states that a fact is a condition which evidence indicates is true. In this methodology we want to discipline ourselves to use nothing but hard facts. If you have fifty concerns on your piece of paper and you want to find out which is the most important when you go to work today, we have some questions that you can ask. The key word is seriousness. What hard facts indicate the seriousness of this particular concern? What hard facts do I have about its immediacy? Is it going to happen today, tomorrow, next Friday? Is it intermittent? What is the growth pattern of this one concern? This will help you determine your priority concern. You can use a rating scale - 1 for real hot, 2 for hot, 3 for not so hot. And for every concern, say you have a list of fifty, you ask these questions. You have to rate each concern. When you go through those fifty items, you give each one a numerical rating. What have you got at the end of this rating?

How many with a rating of 1? How many would you suspect - four, five or six? So what would you do next? Go back and ask the same three questions of those five or six with the rating of 1. Go through that cycle until you come up with your priority concern. Ladies and Gentlemen, recognize this as subjective. What we are trying to do here is find your priority concern.

When you get back to your jobs, list the name of every person you supervise on separate sheets of paper. For a calendar year, or a fiscal year, a quarter, or whatever time period you choose, write the answers to these two questions: 1. What are the major areas of responsibility in his job; and 2. How will you measure his performance in each of the areas. Ask your subordinates to answer the same two questions privately on a piece of paper. What do you think would be the next logical step? Compare them. Then, bring that person in and the two of you sit privately, eyeball to eyeball. What do you expect to find? Differences, discrepancies, conflicts. Should this bother you? We are told by psychologists that we are unique, we are individualists. We should expect differences in how we perceive our jobs. So, do not run scared. Sit there and talk to that person: have a dialogue; clear the air. What should be the end result? Agreement. There should be agreement on what you want to achieve in this job for this particular time period. Have the results typed and give that person a copy. What is the reception of that document by that recipient? He has a goal. Do you think he or she will resist it? Maybe, but not as much as if you had just handed it to him. I predict that if you have the courage to try this methodology that you will tear down any doubts, any communication problems that you currently have. You will clear the air and this person may discover for the first time what you really expect her or him to do. Try it. It is a tremendous thing. Hopefully this will improve personnel ratings and appraisals. How do you appraise people now - on personality, on bias, on prejudice? This might help you improve your appraisal reports. It might make the ratings more objective.

Let us take a look at the seven steps in the Kepner-Tregoe method. Establishing objectives is the first step. The second step is situation analysis where we had a catharsis. We listed our concerns and we found we could establish a priority if we disciplined ourselves to deal with hard facts. I keep using the words hard facts and nobody challenges me. What is a soft fact? An impression, attitude, opinion. Have you ever asked anybody how something is done and gotten this type of answer -

in my opinion, it is expected in my twenty-five years of military judgment, we believe what we tell you. Mr. Manager, when you start getting answers like that, beware. A snow job is enroute. You had better be able to differentiate between a hard fact and a soft fact. If you are making decisions using soft facts, what kind of decision are you going to make? You are going to make a lousy decision and that is why in this methodology we emphasize hard facts. There is a difference and it is not easy many times to differentiate. You have to be persistent and you have to ask the right questions. If you have a list of fifty concerns, the end result is to find out what is the most important concern at this time. And how many concerns do you still have on that list? You cannot forget them. Those alligators are still nipping at you and you have to move. You have to be adaptable. Again, to use your time efficiently, you have to discipline yourself to find out what is the most important concern. Once you find out what that concern is, you have to find out where does this concern locate itself.

According to Kepner-Tregoe, there are three major categories of thought process. Is it problem analysis and we call that PA, or decision analysis, DA, or potential problem analysis, PPA? This methodology is not a locked step procedure. When you get this concern, you have to find out if you have a problem, if you have a decision, or if you have to execute a decision. Many times we do not have a problem. The boss made a decision and he wants us to execute it successfully. There are things that we can put into practice that will increase our probability of success. Once you come out with the priority concern, you then have to ask where do you fall in the process.

There is a wheel on the next slide which you may not be able to see very well; so let me see if I can describe it to you. In the center is the situation analysis. You have a lot of things vying for your attention. We need to come up with one sharp, specific concern. We learned that we can find that concern by asking the questions of immediacy, growth, and seriousness. Once we get that, is it a problem? Is something wrong? Do we know the cause? Is it a decision, a choice to make, or is it a decision that has been made? What could go wrong? How can you avoid trouble? What adverse consequences might we run into? Where do you fall on the outside of this wheel once you come out with the major concern? Again, with this short presentation, we are just going to whet your appetite. You are going to have to get into the book. There are five day seminars that

Kepner-Tregoe put on all over the country. They have two hundred and fifty prime instructors all over the world. You are not expected to thoroughly understand these terms as I toss them out to you today, but we wanted to make you aware of them and the thinking process that is involved. So do not get frustrated if you are not going to be professional KT decision makers.

Now, how do we find out if we have a problem? First, what is your definition of a problem? An obstacle, conflict, a barrier to the attainment of a problem, something which needs a solution or action. I would like to show you using the Kepner-Tregoe method when you have a problem. I think it is critical that you know when you have a problem. Let us try this technique. Draw a straight line. On one end write past and on the other end put future. On the straight line you can put your objective, your goal, your target. You specified it in the first step. In Kepner-Tregoe terminology that is the place where you should be going. Now we have the past and the future. We know where we want to go. You have to pick the time horizon. Now, how do you know when you have a problem? What time frame have we excluded so far? The present. Where are we now? How do you find out where you are now? Give me three ways. Look around. That is something people overlook personal observation. What is the second way? Facts. Other people observe and report things to you. We can read reports and glean the information to see where we are. Those are ways we may discover where we are in our objectives. Some managers think they are in good shape, right on target. Then the I.G. comes in and all hell breaks loose. This manager is shocked to find out he or she is not on target. The resident auditor comes in and reveals certain facts that the manager was not aware of. So, the first step is to perceive where you are. If you are not on target, you have a negative deviation. You have a gap. You have a difference. You may want to write this down. The first question is where are you. If you are on target, you do not have a problem. The second question is do I care. If you do not care, you do not have a problem; it is all over. But if you care, that is the second hurdle. Then the third question is did something in the past cause me to take a detour. Something changed in the past to cause the detour. Do I know what caused that change? Ladies and gentlemen, if you do not know what caused that change then in Kepner-Tregoe methodology you have a legitimate problem. But, if you know what caused the change, you do not have a problem and you move into decision analysis. You by-pass problem analysis which is

very time consuming.

This schematic shows that if you come down this route, you have a negative deviation. Can you have a positive deviation? The same three questions apply here. Where are you? You perceive that you are up here and you should be down here. You have a deviation, a gap. Second question, do I care? Do you care that you have a positive deviation, Mr. Manager? Why would you care? What obvious thing might be wrong here? Your objectives may be too low. What else might you reveal if you pursue this over-achievement? What are the positive benefits in pursuing this? You over-estimated the difficulty. You are ready for new objectives. Another thing that I want to share with you is that you may find one person who has discovered the best way to do a job. You want to know that for what purpose? You want to put it in your training program and let everybody use that best method. For what other reason would you want to know about this best way that this person has used? Jim Sneed and I talked about recognition yesterday. We want to recognize these people who have found the best way. Give them the award, the monetary and the personal recognition. Those are some reasons that you may want to pursue a positive or a plus deviation.

Are there any questions as to how we find out when we have a legitimate problem? There are three questions that you have to answer - where are you presently. If you are on target, I hope you recognize that you do not have a problem. You are on course and whatever you are doing, keep it up. Secondly, do I care? If you say you do not care, it is all over. You can drop this and go on to another concern. The third question is do you know what caused a change in the past? If you do not know, then you have a problem.

Now let us take a look at the next step which is problem analysis. We found that we have a problem. We want to find the cause. That is all we want to do. One of the things that Kepner and Tregoe found in their five years of research in our country, living with and studying decision makers in government, industry, and educational institutions, is that we jump to conclusions. To avoid jumping to conclusions, fill in a problem specification worksheet. You have to discipline yourself to deal with nothing but hard facts. First, identify the object that we got from our priority concern. We have to be specific. Is the object a landing gear or a weapon system? A lot of people say this is good methodology for a hardware problem. It is also good for a people problem. The object here could be Mrs. Kabalowski. The

deviation could be that she comes to work twenty minutes late every day. This can work with people problems. You can identify the object and then you have to identify the deviation. You have to be very specific. You have to discipline yourself to work with only one concern. So once we have the object and identified the deviation, we should address ourselves to four dimensions - what, where, when, and the extent. Then reference this object - what is happening, what is not happening. We are looking for dissimilarities. We are looking for contrast. Ask these specific questions in reference to the object and the deviation. Whatever falls out, record in your problem specification worksheet. You have to recognize that if soft data falls out, the effectiveness of this methodology will be weakened considerably. This is the difficult part particularly when you are dependent upon people for facts who were not recently promoted, who were recently reprimanded, who were recently ostracized. When this happens you are in trouble because people are people. If you do not have good human relations and if you cannot get these facts from them, then KT or any other methodology is not going to help you.

Once we have these four dimensions, then we want to know what is distinctive. You compare the is to the is not. I realize this is Greek to a lot of you but do not get frustrated. The only way you are really going to understand is to read the book or attend one of the Kepner-Tregoe seminars. I have read the book five times and I learn something everytime I reread it. I am trying to apply it in my job and in my family activities. The beauty of this methodology is that it can be used at home with your family problems, with teenagers. You know we are decision making animals. We make decisions twenty four hours a day, seven days a week. So this is not just applicable in library activities.

Once you have the distinctions, concentrate on them and look for change. What you are constantly doing is narrowing that concern. You are looking for what actually changed. You may only have two or three changes that fall out of this whole thing. When you have any changes listed, you have 50% of your hypothesis. Take your objective, your deviation, and your change and frame a tentative hypothesis as to the cause, the tentative cause of this deviation. List your hypothesis and then test it. Verify that tentative hypothesis to be sure that you are dealing with the most likely cause of your particular problem. Test this hypothesis against the is and is not column. If it does not survive, if it does not explain

everything that you have under the is and is not column, you should do what with that hypothesis? Throw it away. Kill it. This is difficult when you are dependent upon people not only in the library but upon people in other functional areas for data, for facts. How effective are you? Can you communicate with the procurement people, the civil engineer, the people that take care of your facility? How about your relationship with finance and accounting? So recognize when you are working on these things that you may not be restricted just to your library operation. You may have to get into other functional areas. What is your relationship, what is your dependency on one another? It will depend on how well you fill out this problem analysis worksheet.

Let us say it another way. Take the dissimilarities from the first two columns of the problem analysis worksheet. We are looking for a distinction, something that is unique, that is different, that is peculiar. Out of that we come up with one or two changes. How did it change? How could it change? How could it produce a deviation? Then we test: we explain both the similarities and the dissimilarities and see if that hypothesis will hold up. The end result is the most likely cause of that deviation. What you have accomplished as a result of going through this problem analysis is that you have come up with the most likely cause. This is time consuming particularly if you have to get facts from other activities. If you are a major command librarian and have to send out letters or telephone other librarians to get all these facts, it is very time consuming. You have to be patient. You have to be tolerant. You have to be a good listener. And I think all of these traits indicate that you have to be a good detective, Perry Mason type. Personality is required to fill out the problem analysis worksheet.

Now that we have the problem, the cause of the problem, the most likely cause, we move into another thought process, decision analysis. What is a decision according to your definition? A course of action based on facts to overcome a problem or reach an objective, a commitment, a solution. They are all good definitions that you have given here. A choice of many alternatives is about the most popular definition of a decision. Now that we know the cause of the problem, we immediately make a decision. We have a choice of alternatives, and so we have a decision analysis. The first three questions on your handout are benefits that we gained from the Mead Paper Corporation of Dayton, Ohio. They are committed to the

Kepner-Tregoe approach. In using the KT approach and having thousands of their executives take the one week course, the Mead Corporation found that they in the past have failed to answer these questions:

1. Time horizon needed to fully implement
2. What parties will be impacted by this change
3. Purpose summary of overall results that must exist at the end of the time horizon.

Let us take a look at the three things that the Mead Corporation found out. This is what I think is so wonderful when industry is willing to share with educational institutions and with the government. Since we have been working with that outfit, I am sure they have gained some ideas from us. I suggest that maybe you ought to consider that in your communities. Do not die in that library; get out into industry. Get out and get knowr, and find out what decision making techniques they are using that you might be able to imitate. There is nothing wrong in learning from the enemy.

Many times you get five or six people together to make a decision. We beat our gums for two or three hours because one guy is thinking a la Rip Rider. He is thinking about 1984. Another person is thinking about tomorrow. Another is worried about next month. A fourth person is thinking about the end of the fiscal year. A fifth person is thinking about 1971. We beat our gums because we are on different time horizons. This happens when you get a group of people together. Many of our decisions are group oriented. We do not make major decisions in isolation. Be sure you clear the air. What time horizon are we talking about? This decision has to be made in what time horizon? Get it in the open. Do not play games with one another.

Secondly, once we make this decision what parties are going to be affected by this change? Let us be specific. Who is going to be impacted by this - the librarian, the civil engineer, the community? Are we going to create any ecological problems? Are we going to run into the union? The unions are becoming very effective. Collective bargaining in the public sector is gaining speed, and you have to be aware of union impact. What parties are impacted?

Third question, what is the purpose of this decision? On your worksheets you notice we say twenty-five words or less. Let us keep it down and be concise; be exact. Do not get carried away. These three questions are very important.

Now at this point, the fourth question, we must review and update our objectives. Notice that as we go through this problem analysis and get into decision analysis we have these three things. What has happened to your organization? What changes have been occurring? Time marches on. Recognize that all these things that I am throwing at you machine gun style do not occur on five minute settings. This may cover a week, two weeks, a month, a year. So you had better take a look at your objectives. You had better review them and see if they are current. If they are not current, you had better update them.

Now that you have your objectives, we are going to get double duty out of them as we are going to use them as our criteria. In helping us compare and choose the alternatives that we are going to consider and then ultimately pick one, we are going to classify these objectives. We have a worksheet where you can classify a must objective and a want objective. A must objective is one in your judgment that is not a compromise, that you will not negotiate. It is one that you absolutely must achieve. All other objectives are then classified as things that we want to achieve if we have any resources, if we have any time left over after we achieve our must objectives. So we have to classify them and this is subjective judgment. On the worksheet of decision analysis questions, put your must objectives and then your want objectives. Your want objectives may have different values. One might be more important than another. So you have a weighing problem here. You may use any weighting scale you like. I like to suggest nothing higher than ten, zero to ten. Ten is the highest value, zero the lowest. You then have to rate the objectives you have listed. What would a ten objective be equivalent to or close to? A must objective. It is close; you are not sure which it should be. Recognize as you go through this process that this stuff is not in concrete. You have to be flexible. Then if you reveal data as you go along, if facts come in that you did not have previously and that would change your mind from a want to a must objective, do it. Conversely if you find out it is not as high or important as you thought, downgrade it. You have not only the principle of feedback but feedforward. After we have classified our objectives, the next thing to do is to generate alternatives. How many new ways are there for doing this? What new ways are there to accomplish this? Defer judgment. Be creative. Here is where these ideas generate the techniques that we talked about yesterday.

With computers today and other techniques, it is conceivable that we can come up with millions of alternatives. We can ideate indefinitely. We know how to generate these alternatives and record them. You have to decide how much time you have, how important it is, if you want other people, or if you want to do it by yourself. These are judgments you have to make as to how you get the alternative. You can only ideate so long and then you have to evaluate those ideas. Compare the alternatives to the must objective. Does this meet the must objective? You will get a go or no-go condition. If you say it does not, what should you do with that alternative? Toss it out. Kill it. You do not have time to pursue a dead horse. If an alternative meets a must objective, you have to give it a score. How well does it meet that objective? You can use a rating scale. We want to compare and choose, go or no-go. This is subjective judgment. Recognize this. We make errors in ratings. Which alternative best satisfies your objective? The worksheet gives you a quantitative technique. With a little imagination, you can have the computer do this for you. The computer can evaluate these alternatives in a quantitative technique very easily. Give it a score. You say it only meets about half; so you rate it a five, if you are using a scale of zero to ten with ten being the highest. The weighted score helps you to compare. Which one do you think you would choose? The one with the highest score.

Notice that when you take the highest score that you think that you have made your decision. Beware. Do not jump to conclusions. There may be some factors that are not quantifiable. We worked on one project where we had to close one air base. We rank ordered the highest effective base in the United States Air Force and gave it the rating one. We went all the way down to rating 120. Close base 120. What adverse consequences might we have? What can go wrong? Had we had trouble in the past? What weaknesses are there? Who is against it? Where is base 120. South Carolina. This was about a year ago. Someone asked from what state is Mendel Rivers. Let us go to the next highest alternative. Base 119 is in California. What can go wrong with closing that base? Let us go to base 118. You see there are things that are not quantifiable. So do not jump to conclusions. What can go wrong with this alternative? What political implications are there, economic, psycho-social? What are the things you cannot put a number on? We have to take a look at the negative results. How valid is your data source? How valid is your information? What is

the total threat. Consider the numeric value and the other factors and make your best balanced decision.

After we have made our decision, we advance into the third major phase of the Kepner-Tregoe process which is potential problem analysis. What can we do to insure that our decision will be successfully executed and that it will correct the problem we identified in our schematic? You have to remember Murphy's Laws. In this potential problem analysis there are some things that we can do to minimize the effect of Murphy's Laws. We can do some planning here. We can make a brief statement of the situation. We can list the steps or elements in sequence. We are going to have to execute this decision. We can identify the critical areas. We know from the past where decisions normally fall down. Is there a new step? Are there many unknowns? Do you have to retrain, cross-train people? How about the high cost impact, the tight time limit? Historically you have had trouble in this one section in your library operation. You can predict from the past that you may have problems in this new decision. You have to identify your priority. So here is a point where you can take to mind what Rip Rider spoke to you about, planning and forecasting. Those tie right into decision making.

Now let us take a look at PPA, potential problem analysis. You have your priority critical area. You may have so many that you cannot be everything to everybody. A lot of this process time is a constraint. You have a lot of pressure. People are putting the heat on you and they want decisions. You can list specific problems and then identify your object or deviation. Set a priority. What is the probability of this occurring? You can develop the likely causes of this thing happening. We can provide the information. We can trigger our contingency action and then the end result of this potential problem analysis is that you might have to what? You may have to go back and revise this plan. Remember flexibility and adaptability. You have to be adaptable as new facts are revealed. This is dynamic. It is changing environment and people even change in their behavior.

Then you get down to the last step - implementation and control. You have a plan and now you have to execute it. You know there are a lot of people who go through a tremendous systematic approach until they reach the last step where action is required. Then they have a mental blackout. They are lousy salesmen. You have to do it sometime. You cannot play forever. You cannot

remain in limbo. You have to implement that decision and employ the cybernetic principle that Norbert Weiner popularized in 1947. Cybernetics is the principle of feedback. You have feedback that the decision is being successfully implemented and you continue to carry out the plan. You can get feedback that is negative, that is not correcting the cause; then you have to implement your contingency plan. This requires control on the part of you, the manager. You cannot sit back and drink coffee after you make your decision. You have to be sure you successfully implement it. That is the seventh step in the Kepner-Tregoe procedure.

If any of you have any questions about this, do not hesitate to call me. Get the Kepner-Tregoe book and look at it with a little more depth than

you got here today. See if you can put their procedure into practice because there are many advantages to gain from it. One of the greatest we have found at AFIT is that it gives you a common vocabulary. That is a tremendous improvement in any organization. The point we want to leave with you is that in management we have resources and we have to manage them effectively. There are many techniques. A lot of this stuff we talked about is not new. We are always looking for something sophisticated, exotic. You do not need sophisticated, exotic tools to solve simple problems. We hope that in our presentation that we have left with you that you should be systematic in your approach in solving problems and making decisions, defer judgment, generate ideas, and come up with better libraries.



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BIBLIOGRAPHIES**

Appraisals  
Motivation  
Decision Making  
Forecasting

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October 1971



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## MOTIVATION AND PRODUCTIVITY

### Summary of Major Theories

**Dr. Abraham Maslow.** . . "Hierarchy of Needs". . . Motivation comes about because a need is not satisfied. Once it is satisfied it ceases to be a need. The following are the basic classes of needs from the most basic to the most sophisticated: physiological, security, social, status or ego, and self realization.

**Dr. Saul Gelierman.** . . "Job Enlargement". . . . The individual is always following what he thinks is a sensible strategy for getting along in his world. To motivate an employee we should use the following techniques:

1. Stretching. . . assign duties that are more demanding than the present ones.
2. Management by Objectives. . . give him rather broad discretion over how his work is to be handled.
3. Participation. . . seek his comments and suggestions prior to making significant decisions affecting his work.

**Dr. Frederick Herzberg.** . . "Motivation-Hygiene Theory". . . The major motivators are: achievement, recognition, the work itself, professional growth, and responsibility. Money, type of supervision, working conditions affect most employees in a negative way, if at all.

There are only three things we can do with an employee:

1. Use him to his capacity
2. Get rid of him
3. Have a morale problem

**Dr. Douglas McGregor.** . . "Theory X and Theory Y". . . We manage as we do because of certain assumptions we make about people in general. If we assume people are by nature lazy, not intelligent, avoid responsibility, are not creative, then we exercise close supervision. If we assume work is natural, people want responsibility, are intelligent and are capable of being creative we exercise loose supervision, or what McGregor calls "Theory Y" supervision. Recent studies indicate that many of the assumptions we have held in the past are erroneous.

**Dr. Chris Argyris.** . . "Personality and Organization". . . Organizations are willing to pay high wages if mature adults will, for eight hours a day, behave in a less than mature manner.

Within the management group of most organizations certain kinds of actions are rare, while others are frequent:

#### High Frequency Actions

1. Evaluative feedback. . . ideas are evaluated not so much on their merits as on their conformity to traditional norms
2. Defensiveness. . . ideas which are not consistent with tradition are regarded as a threat and are attacked rather than examined.
3. Stability. . . the organization is in fact, dedicated to preserving its traditions and to avoid change, regardless of the cost.

#### Low Frequency Actions

1. Feedback. . . a clear indication of how one interprets the meaning of someone else's behavior.
2. Owning up. . . candor in supporting or opposing ideas.
3. Openness. . . ideas get hearing on their merits.
4. Risk taking. . . willingness to cope with situations whose outcome is uncertain.

To improve the effectiveness of the organization we should reverse these frequencies. Thus, those activities that are rare today should become frequent. Those that are frequently observed today should occur less often.

Dr. David McClelland. . . "The Achievement Motive". . . The achievement motive is possessed to a significant degree by only about 10% of the population of the United States. Yet these people, for the most part, are responsible for where the United States is today. Achievement people have three major characteristics:

1. Like situations in which they take personal responsibility for finding solutions to problems.
2. Set moderate achievement goals and take "calculated" risks.
3. Need concrete feedback as to how well they are doing.

Dr. Rensis Likert. . . "Participative Management System". . . Likert attributes most of the difficulties that unproductive organizations have to their management systems rather than to personal inadequacies in their managers and employees. The more closely a company's management style approaches a true participative style the more likely it is to have a record of sustained high productivity, good labor relations, and high profitability. To turn an organization around you must always work on employee's attitudes first.

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This list isn't intended to be exhaustive, but to provide the learner with some further suggested references for further study if so inclined in the study of the fascinating idea of problem solving and decision making processes.

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4TH-1960

Armed Services Technical Information Agency  
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5TH-1961

Air Force Academy  
Colorado Springs, Colorado

6TH-1962

White Sands Missile Range  
New Mexico

7TH-1963

Naval Ordnance Laboratory  
Silver Spring, Maryland

8TH-1964

Air Force Weapons Laboratory  
Albuquerque, New Mexico

9TH-1965

Military Academy  
West Point, New York

10TH-1966  
Navy Electronics Laboratory  
San Diego, California

11TH-1967  
Air Force Institute of Technology  
Wright-Patterson Air Force Base, Ohio

12TH-1968  
Army War College  
Carlisle Barracks, Pennsylvania

13TH-1969  
Naval War College  
Newport, Rhode Island

14TH-1970  
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Washington, D.C.

## MURPHY'S LAWS

1. In any field of scientific endeavor, anything that can go wrong will go wrong.
2. Left to themselves, things always go from bad to worse.
3. If there is a possibility of several things going wrong, the one that will go wrong is the one that will do the most damage.
4. Nature always sides with the hidden flaw.
5. Mother nature is a bitch.
6. If everything seems to be going well, you have obviously overlooked something.
7. Don't worry about nothing . . . ain't nothing going to be all right.
8. If you remain calm in the midst of all this confusion you obviously don't understand the situation.

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## SELF-INTERROGATION

This type of question list was originated by the Massachusetts Institute of Technology. You can use a list like this or develop your own questions that apply to your particular problem.

*PUT TO OTHER USES?* New ways to use as is? Other uses if modified?

*ADAPT?* What else is like this? What other ideas does this suggest? Does past offer parallel? What could I copy? Whom could I emulate?

*MODIFY?* New twist? Change meaning, color, motion, sound, odor, form, shape? Other changes?

*MAGNIFY?* What to add? More time? Greater frequency? Stronger? Higher? Longer? Thicker? Extra value? Plus ingredient? Duplicate? Multiply? Exaggerate?

*MINIFY?* What to subtract? Smaller? Condensed? Miniature? Lower? Shorter? Lighter? Omit? Streamline? Split up? Understate?

*SUBSTITUTE?* Who else instead? What else instead? Other ingredient? Other material? Other process? Other power? Other place? Other approach? Other tone of voice?

*REARRANGE?* Transpose positive and negative? How about opposites? Turn it backward? Turn it upside down? Reverse roles? Change shoes? Turn tables? Turn other cheek?

*COMBINE?* How about a blend, an alloy, an assortment, an ensemble? Combine units? Combine purposes? Combine appeals? combine ideas?

## ARITHMETIC TEST

In the following simple arithmetic problems a plus (+) sign means to multiply, a divide ( $\div$ ) sign means to add, a minus (-) sign means to divide, and times (x) sign means to subtract. Complete the problems following these directions.

$$\begin{aligned}8 \div 2 &= \\9 + 11 &= \\4 \times 3 &= \\6 + 2 &= \\9 - 3 &= \\7 \times 4 &= \\4 + 4 &= \\8 - 4 &= \\12 \times 2 &= \\20 - 10 &= \\9 - 1 &= \\5 + 6 &= \\2 \times 1 &= \\10 - 5 &= \\12 + 2 &= \\6 + 6 &= \\8 \div 5 &= \\6 \div 6 &= \\17 \times 2 &= \\14 + 7 &= \end{aligned}$$

$$\begin{aligned}14 + 7 &= \\6 \times 5 &= \\8 \div 3 &= \\7 \times 2 &= \\9 \div 2 &= \\8 - 4 &= \\9 + 6 &= \\1 + 1 &= \\8 \times 7 &= \\13 - 1 &= \\16 - 4 &= \\8 \times 2 &= \\9 + 9 &= \\6 \times 2 &= \\8 \div 4 &= \\10 - 2 &= \\4 - 1 &= \\18 - 3 &= \\8 + 2 &= \\15 \times 3 &= \end{aligned}$$

## WORKSHEET

### SELLING THE IDEA --- GETTING THE SOLUTION ADOPTED

Selected idea: \_\_\_\_\_

Whom do I need to convince of its value? (maybe yourself!) \_\_\_\_\_

What do I want him to do about the idea? \_\_\_\_\_

(For example, authorize its use; buy the piece of equipment, give me time off to develop it for production, etc.)

Advantages to him of accepting the idea: (Refer to Evaluative Criteria on Worksheet 11). If idea "tested" well, these are some of the advantages).

How to make this advantage obvious to him: (how to visualize it for him, how to present arguments convincingly, etc.)

1.

1. a.

b.

c.

etc.

2.

2. a.

b.

c.

etc.

3.

3. a.

b.

c.

etc.

4.

4. a.

b.

c.

etc.

etc.

Possible objections he may have to the idea:

How to overcome these objections:

1.

1. a.

b.

c.

etc.

2.

2. a.

b.

c.

etc.

3.

3. a.

b.

c.

etc.

etc.

(Use additional pages as needed).

"Scientific" Method of Problem Solving is useful for solving a problem which has a GOAL and OBSTACLE(s) to that goal. The method uses a sequence of steps. Skipping a step can lead to bad results, but you can and should go back as many steps as you want as often as you want.

<u>STEPS</u>	<u>PURPOSES</u>
1. RECOGNIZE THE PROBLEM	Be sure you have the real problem. Be sure it's one you can <i>do</i> something about. Write a tentative statement of the problem (try several).
2. GATHER DATA	Learn all the facts - do research. Write down any assumptions you make. Be careful and specific
3. LIST POSSIBLE SOLUTIONS	Use creativity and withhold judgement. Write down <i>all</i> solutions you can dream up.
4. TEST POSSIBLE SOLUTIONS	Establish criteria (standards) by which to judge solutions. Weigh each solution against each criterion
5. SELECT BEST SOLUTION (OR COMBINATION)	Select the one which work best
6. APPLY THE SOLUTION!	Take action, develop a complete plan for the boss's approval, get the green light, or submit it to a trial. ACT!

---

*Brainstorming:* An intentionally uninhibited, conference type, group approach. Four, "ground rules" are observed:

1. Judicial thinking must be withheld—until ideation is carried out.
2. "Free wheeling" is welcomed.
3. Quantity (of ideas) is wanted.
4. Combination and improvement (of ideas) are sought.

The objective is to produce the greatest possible number of alternative ideas for later evaluation and development.